ACTUARIAL REPORT FY 2017-18

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Fellow, Institute of Actuaries of India #5394

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India Power Corporation Limited

Gratuity Scheme

Reporting under Indian Accounting Standard (Ind AS) 19

Actuarial Valuation for Year ended 31 March 2018

Ritobrata Sarkar (Memb no - 5394)
Fellow, Institute of Actuaries of India

Date: 7 May 2018

India Power Corporation Limited
Gratuity Scheme
Reporting under Indian Accounting Standard (Ind AS) 19

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INDIA POWER CORPORATION LIMITED * Plot No.-X1-2&3, Block-EP, Sector-V, Salt Lake City, Kolkata-700 091

KP

1 Introduction

1.1 This report is provided subject to the terms set out herein and in the Engagement Letter dated 4 April 2018 and the accompanying General Terms and Conditions of Business.

1.2 I have been requested by India Power Corporation Limited (the "Company") to report on the financial position of its Gratuity Scheme (the "Plan") liabilities for the Year ending 31 March 2018 and to calculate the accounting expenses associated with the Scheme for the Year ending 31 March 2018 as per the norms of Indian Accounting Standard (Ind AS) 19 issued by The Ministry of Corporate Affairs of the Central Government of India in consultation with the National Advisory Committee on Accounting Standards.

1.3 The results set out in this report are based on my understanding of Ind AS 19 and its application to the Plan. They have been prepared for the specific requirements of Ind AS 19 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.

1.4 This report complies with Actuarial Practice Standard 27 (APS 27) as published by the Institute of Actuaries of India (IAI), which came into effect from 1 January 2018.

1.5 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.

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2 Summary of Results

2.1 The table below shows a summary of the key results for the Year ended 31 March 2018.

Assets / Liabilities	31-Mar-17	31-Mar-18
	INR	INR
1. Defined Benefit Obligation (DBO)*	131,161,453.00	146,948,000.00
2. Fair Value of Plan Assets (FVA)	6,948,633.00	4,417,435.00
3. Funded Status (Surplus/(Deficit))	(124,212,820.00)	(142,530,565.00)

** The DBO as on 31 March 2017 is as certified by previous Actuary.*

Defined Benefit Cost	Year ended 31 March 2018
	INR
1. Service Cost	10,052,000.00
2. Defined Benefit Cost recognised in P&L	18,105,499.00
3. Remeasurements recognised in Other Comprehensive Income (OCI) Loss/(Gains)	16214950.00

Key Assumptions used	31 March 2018
1. Discount Rate	7.60%
2. Rate of Salary increases	5.00%

2.2 Service cost represents the Current Service cost which is the cost associated with the Current period benefit accruals and the Past Service Cost which is the change in the DBO resulting from changes in the benefit plan provisions for employee Service in prior periods. Total Employer expense is the expense under Ind AS 19; inclusive of Service Cost and Net Interest.

2.3 Table 1 shows the Disclosure of Defined Benefit Cost for the Year ending 31 March 2018

2.4 Table 2 shows the Net Balance Sheet position as at 31 March 2018

2.5 Table 3 shows the Changes in Benefit Obligations and Assets over the Year ending 31 March 2018

2.6 Table 4 shows the Additional Disclosure Information

2.7 Table 5 shows the Sensitivity Analysis

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3 Information Sources

3.1 The actuarial valuation as at 31 March 2018 has been carried out on the basis of the membership data provided by the company as at 31 March 2018.

3.2 The principal rules of the Gratuity Scheme as at 31 March 2018 are as provided by the company. A summary of the plan provisions has been mentioned in Appendix E.

3.3 In preparing this Report, there has been a reliance on the completeness and accuracy of all the data and information, including Plan provisions, membership data and asset information provided orally and in writing by or on behalf of the Company and its advisers. No detailed validation checks have been performed on the information provided. However, broad consistency checks have been carried out.

3.4 According to Ind AS 19 the discount rate should be based upon the market yields available on government bonds at the accounting date, corresponding to a estimated term that matches that of the obligations.The other assumptions should be chosen to reflect a best estimate of the future long-term experience.

The Discount Rate as at 31 March 2018 is based on the government bond yields as at 28 March 2018 .

3.5 The Gratuity Scheme is treated as a post-employment benefit under Ind AS 19 and the actuarial gains/losses are recognised immediately through the Other Comprehensive Income via retained earnings.

3.6 The Impact of change in Gratuity Payable Ceiling from INR 10 Lakhs to 20 Lakhs has been show as a Past Service Cost and is recognised immediately in the Profit and Loss Account.

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4 Conclusion

4.1 The assumptions and methodology used in compiling this report are consistent with my understanding of Ind AS 19.

4.2 The summary of the membership data used (including details of any modifications applied) in the calculations is set out in Appendix B.

4.3 The key assumptions used in the calculations are set out in Appendix C.

4.4 The results are particularly sensitive to some assumptions, such as the discount rate, level of salary increase and level of employee turnover. A decrease in the discount rate assumed or an increase in salary inflation will lead to an increase in reported cost.

4.5 The methodology used in the calculations is set out in Appendix D.

4.6 The benefits valued (including any discretionary benefits) in this Report are summarised in Appendix E.

4.7 Full actuarial valuations as at the start and end of the accounting period have been performed, based on member data and plan information provided at these dates.

4.8 The full results of our calculations are set out in Tables 1 to 5

4.9 I would be pleased to discuss this Report with you.

Yours faithfully

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Ritobrata Sarkar (Memb no - 5394)
Fellow, Institute of Actuaries of India

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TABLE 1

India Power Corporation Limited
Gratuity Scheme
Actuarial Calculations under Indian Accounting Standard (Ind AS) 19
Disclosure of Defined Benefit Cost for the Year ending 31 March 2018
Local currency - INR

A Profit & Loss (P&L)	One Year Period Ending 31 March 2017	One Year Period Ending 31 March 2018
1 Current service cost	6,288,093.00	6,969,000.00
2 Past service cost - plan amendements	*0.00*	*3,083,000.00*
3 Curtailment cost / (credit)	0.00	0.00
4 Settlement cost / (credit)	0.00	0.00
5 Service cost	6,288,093.00	10,052,000.00
6 Net interest on net defined benefit liability / (asset)	7,323,596.00	8,053,499.00
7 Immediate recognition of (gains)/losses – other long term employee benefit	0.00	0.00
8 Cost recognised in P&L	13,611,689.00	18,105,499.00
B Other Comprehensive Income (OCI)	**31 March 2017**	**31 March 2018**
1 Actuarial (gain)/loss due to DBO experience	(342,409.00)	9,327,464.00
2 Actuarial (gain)/loss due to DBO assumption changes	5,176,885.00	7,698,000.00
3 Actuarial (gain)/loss arising during period	4,834,476.00	17,025,464.00
4 Return on plan assets (greater)/less than discount rate	2,785,088.00	(810,514.00)
5 Actuarial (gains)/ losses recognized in OCI	7,619,564.00	16,214,950.00
6 Adjustment for limit on net asset	0.00	0.00
C Defined Benefit Cost	**31 March 2017**	**31 March 2018**
1 Service cost	6,288,093.00	10,052,000.00
2 Net interest on net defined benefit liability / (asset)	7,323,596.00	8,053,499.00
3 Actuarial (gains)/ losses recognized in OCI	7,619,564.00	16,214,950.00
4 Immediate recognition of (gains)/losses – other long term employee benefit	0.00	0.00
5 Defined Benefit Cost	21,231,253.00	34,320,449.00
D Assumptions as at	**31 March 2017**	**31 March 2018**
1 Discount Rate	7.76%	6.93%
2 Rate of salary increase	3.50%	3.50%

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TABLE 2

India Power Corporation Limited
Gratuity Scheme
Actuarial Calculations under Indian Accounting Standard (Ind AS) 19
Net Balance Sheet position as at 31 March 2018
Local currency - INR

A Development of Net Balance Sheet Position	One Year Period Ending 31 March 2017	One Year Period Ending 31 March 2018
1 Defined benefit obligation (DBO)	(131,161,453.00)	(146,948,000.00)
2 Fair value of plan assets (FVA)	6,948,633.00	4,417,435.00
3 Funded status [surplus/(deficit)]	(124,212,820.00)	(142,530,565.00)
4 Effect of Asset ceiling	0.00	0.00
5 Net defined benefit asset/ (liability)	**(124,212,820.00)**	**(142,530,565.00)**

B Reconciliation of Net Balance Sheet Position	31 March 2017	31 March 2018
1 Net defined benefit asset/ (liablity) at end of prior period	(125,498,000.00)	(124,212,820.00)
2 Service cost	(6,288,093.00)	(10,052,000.00)
3 Net interest on net defined benefit liabilty/ (asset)	(7,323,596.00)	(8,053,499.00)
4 Amount recognised in OCI	(7,619,564.00)	(16,214,950.00)
5 Employer contributions	22516433.00	16002704.00
6 Benefit paid directly by the Company	0.00	0.00
7 Acquisitions credit/ (cost)	0.00	0.00
8 Divestitures	0.00	0.00
9 Cost of termination benefits	0.00	0.00
10 Net defined benefit asset/ (liablity) at end of current period	**(124,212,820.00)**	**(142,530,565.00)**

C Assumptions as at	31 March 2017	31 March 2018
1 Discount Rate	6.93%	7.60%
2 Rate of salary increase	3.50%	5.00%

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TABLE 3

India Power Corporation Limited
Gratuity Scheme
Actuarial Calculations under Indian Accounting Standard (Ind AS) 19
Changes in Benefit Obligations and Assets over the Year ending 31 March 2018
Local currency - INR

A Change in Defined Benefit Obligation (DBO)	One Year Period Ending 31 March 2017	One Year Period Ending 31 March 2018
1 DBO at end of prior period	130,543,000.00	131,161,453.00
2 Current service cost	6,288,093.00	6,969,000.00
3 Interest cost on the DBO	9,359,431.00	8,407,000.00
4 Curtailment (credit)/ cost	0.00	0.00
5 Settlement (credit)/ cost	0.00	0.00
6 Past service cost - plan amendements	*0.00*	*3,083,000.00*
7 Acquisitions (credit)/ cost	0.00	0.00
8 Actuarial (gain)/loss - experience	(342,409.00)	9,327,464.00
9 Actuarial (gain)/loss - demographic assumptions	0.00	0.00
10 Actuarial (gain)/loss - financial assumptions	5,176,885.00	7,698,000.00
11 Benefits paid directly by the Company	0.00	0.00
12 Benefits paid from plan assets	(19,863,547.00)	(19,697,917.00)
13 DBO at end of current period	131,161,453.00	146,948,000.00

B Change in Fair Value of Assets	31 March 2017	31 March 2018
1 Fair value of assets at end of prior period	5,045,000.00	6,948,633.00
2 Acquisition adjustment	0.00	0.00
3 Interest income on plan assets	2,035,835.00	353,501.00
4 Employer contributions	22,516,433.00	16,002,704.00
5 Return on plan assets greater/(lesser) than discount rate	(2,785,088.00)	810,514.00
6 Benefits paid	(19,863,547.00)	(19,697,917.00)
7 Fair Value of assets at the end of current period	6,948,633.00	4,417,435.00

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TABLE 4

India Power Corporation Limited
Gratuity Scheme
Actuarial Calculations under Indian Accounting Standard (Ind AS) 19
Additional Disclosure Information
Local currency - INR

A Expected benefit payments for the year ending	
1 March 31, 2019	7,370,000
2 March 31, 2020	17,680,000
3 March 31, 2021	23,931,000
4 March 31, 2022	21,693,000
5 March 31, 2023	19,209,000
6 March 31, 2024 to March 31, 2028	75,134,000

B Expected employer contributions for the period ending 31 March 2019	142,530,565
C Weighted average duration of defined benefit obligation	7 Years
D Accrued Benefit Obligation at 31 March 2018	108,036,000

E Plan Asset Information as at 31 March 2018	Percentage
Government of India Securities (Central and State)	0.00%
High quality corporate bonds (including Public Sector Bonds)	0.00%
Equity shares of listed companies	0.00%
Property	0.00%
Cash (including Special Deposits)	0.00%
Schemes of insurance - conventional products	100.00%
Schemes of insurance - ULIP products	0.00%
Other	0.00%
Total	100.00%

Note: This report provides basic information in relation to plan assets. Additional input may be required by the Company in relation to the plan asset disclosures specified in paragraphs 142, 143 of Ind AS 19

F Current and Non Current Liability Breakup as at	INR 31 March 2017	INR 31 March 2018
1 Current Liability	(34,209,833)	(2,688,000)
2 Non Current Asset/ (Liability)	(96,951,620)	(139,842,565)
3 Net Asset/(Liability) as at 31 March 2018	**(131,161,453)**	**(142,530,565)**

The liability for an underfunded plan has been classified as a current liability, a non-current liability, or a combination of both, based on guidelines issued under Schedule III to the Companies Act,2013.
The current portion (determined on a plan-by-plan basis) is the amount by which the actuarial present value of benefits included in the benefit obligation payable in the next 12 months, or operating cycle if longer, exceeds the fair value of plan assets. The assets for an overfunded plan shall be classified as a non-current asset in a classified statement of financial position.

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India Power Corporation Limited
Gratuity Scheme
Actuarial Calculations under Indian Accounting Standard (Ind AS) 19
Additional Disclosure Information (Continued)

Description of Plan Characteristics and Associated Risks

The Gratuity scheme is a final salary Defined Benefit Plan that provides for a lump sum payment made on exit either by way of retirement, death, disability or voluntary withdrawal. The benefits are defined on the basis of final salary and the period of service and paid as lump sum at exit. The Plan design means the risks commonly affecting the liabilities and the financial results are expected to be:

1 Interest rate risk : The defined benefit obligation calculated uses a discount rate based on government bonds. If bond yields fall, the defined benefit obligation will tend to increase

2 Salary Inflation risk : Higher than expected increases in salary will increase the defined benefit obligation

3 Demographic risk : This is the risk of variability of results due to unsystematic nature of decrements that include mortality, withdrawal, disability and retirement. The effect of these decrements on the defined benefit obligation is not straight forward and depends upon the combination of salary increase, discount rate and vesting criteria. It is important not to overstate withdrawals because in the financial analysis the retirement benefit of a short career employee typically costs less per year as compared to a long service employee.

Description of Funding Arrangements and Policies

There are no Statutory minimum funding requirements for such plans mandated in India. However a company can fund the benefits by way of a separate irrevocable Trust to take advantage of tax exemptions and also to ensure security of benefits.

The scheme is funded by way of a separate irrevocable Trust and the company is expected to make regular contributions to the Trust. The fund is managed internally by the company and the assets are invested as per the pattern prescribed under Rule 101 of the IT Rules.

The Trustees are responsible for the investment of the assets of the Trust as well as the day to day administration of the scheme. The asset allocation of the Trust is set by the Trustees from time to time, taking into account the membership profile, the liquidity requirements of the Plan and risk appetite of the Plan sponsor.as per the investment norms. Administrative expenses of the trust are met by the company. The Trustees are required to conduct necessary business e.g. Approval of Trust's Financial Statements, Review Investment performance.

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TABLE 5

India Power Corporation Limited
Gratuity Scheme
Actuarial Calculations under Indian Accounting Standard (Ind AS) 19
Sensitivity Analysis
Local currency - INR

DBO on base assumptions as at 31 March 2018 *These assumptions are summarised in Appendix C of the report.*	146,948,000.00
A Discount Rate	
Discount Rate as at 31 March 2018	7.60%
1 Effect on DBO due to 1% increase in Discount Rate	(8,626,000.00)
Percentage Impact	-6%
2 Effect on DBO due to 1% decrease in Discount Rate	9,718,000.00
Percentage Impact	7%
B Salary Escalation Rate	
Salary Escalation Rate as at 31 March 2018	5.00%
1 Effect on DBO due to 1% increase in Salary Escalation Rate	9,791,000.00
Percentage Impact	7%
2 Effect on DBO due to 1% decrease in Salary Escalation Rate	(8,876,000.00)
Percentage Impact	-6%

Method used for sensitivity analysis: The sensitivity results above determine their individual impact on the Plan's end of year Defined Benefit Obligation. In reality, the Plan is subject to multiple external experience items which may move the Defined Benefit Obligation in similar or opposite directions, while the Plan's sensitivity to such changes can vary over time.

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A Understanding Actuarial Gains and Losses

A 1 1 Understanding Actuarial Gains and Losses

Possible reasons for Actuarial Gains or Losses on Plan Liabilities	
1	If the actual attrition, retirement or mortality experience turns out to be higher or lower than expected based on the assumptions made at the start of the accounting period, it would lead to an Actuarial Gain or Loss on Plan Liabilities.
2	If the salary increases are higher or lower than expected based on the assumption made at the start of the accounting period , it would lead to an Actuarial Gain or Loss on Plan Liabilities.
3	If the actuarial assumptions of salary increase, attrition rate and discount rate change from one valuation year to another, it may lead to Actuarial Gain or Loss on Plan Liabilities.
4	Any significant changes in the demographic profile may also lead to Actuarial Gain or Loss on Plan Liabilities such as a large growth of the employee count from new joinees.
5	If the actual leave availment from the current year entitlement is different than the Availment Pattern assumed at the start of the accounting period, it may leave to Actuarial Gain or Loss on Plan Liabilities.

Possible reasons for experience Gains or Losses on Plan Assets:	
1	Return on plan assets greater/(lesser) than discount rate. For example, if the discount rate was 8% and the fund actually earned 7%, it would result in an actuarial loss on assets.

The reasons explained above aim at helping to understand the possible reasons for the occurrence of Actuarial Gains or Losses in an intervaluation period. Specific reasons for Actuarial Gains or Losses as entailed in Table 3 would require a more detailed investigation.

B Summary of Membership Data

B 1.1 Below is a summary of the active members of the plan:

	31-Mar-17	31-Mar-18
Number of employees	548	537
Total monthly salary (INR)	15,515,091	17,454,592
Total annual Salary (INR)	186,181,092	209,455,104
Average annual Salary (INR)	339,747	390,047
Average attained age (years)	Not Available	47.09
Average past service (years)	19.05	18.54

***The membership summary as at 31 March 2017 is as certified by the previous actuary.*

B 1.2 *Spilit of Liability*

Branch	31-Mar-17	31-Mar-18
Wind Division	*86,870*	*129,000*
Power Division	*131,074,583*	*146,819,000*
Total	*131,161,453*	*146,948,000*

B 1.3 *Key Mangerial Liability*

Employee Id	Company	Liability (INR)
300739	*India Power Corporation Limited*	*147,500*
300167	*India Power Corporation Limited*	*323,000*
300541	*India Power Corporation Limited*	*203,900*
300570	*India Power Corporation Limited*	*170,100*
300448	*India Power Corporation Limited*	*105,900*

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C Assumptions

C1.1 The valuation summarised in this report involves actuarial calculations that require assumptions about future events. India Power Corporation Limited is responsible for the selection of the assumptions.

C1.2 I have not carried out a formal experience analysis within the last 3 years for the salary escalation and withdrawal rate in the process of advising on material actuarial assumptions. The importance, implication and broad guidelines for future salary increase assumption and withdrawal rate assumption have been discussed with the Company. The Company feels that the salary increase assumption and withdrawal rate assumption used in this report best represent their long term perspective. I believe that the assumptions used in this report are reasonable for the purpose for which they have been used. However I recommend an experience analysis be carried out once every three years for the purpose of validating the assumptions.

C1.3 The actuarial assumptions (demographic & financial) employed for the calculations as at 31 March 2017 and 31 March 2018 are as follows.

Financial & Demographic Assumptions	31-Mar-17	31-Mar-18
Discount Rate	6.93%	7.60%
Salary Escalation Rate	3.50%	5.00%
Mortality Rate	Indian Assured Lives Mortality (2006-08) (modified) Ult	Indian Assured Lives Mortality (2006-08) (modified) Ult
Withdrawal Rate	Less than 40 - 4.2% 40 and above - Nil	Less than 40 - 4.2% 40 and above - Nil

*******The assumptions as at 31 March 2017 are as certified by the previous actuary.***

Specimen Mortality rates

Age	Rates	Age	Rates
20	0.000888	45	0.002874
25	0.000984	50	0.004946
30	0.001056	55	0.007888
35	0.001282	60	0.011534
40	0.001803	65	0.017009

C1.4 *Notes:*

1 The effects of Mortality and Withdrawal have been factored by constructing a Multiple Decrement Table taking into account the above Mortality table.

2 Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as:
a. Plan experience differing from that anticipated by the economic or demographic assumptions
b. Changes in economic or demographic assumptions
c. Changes in plan provisions or applicable law
d. Significant events since last actuarial valuation

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D Methodology

D 1.1 The Projected Unit Credit (PUC) actuarial method has been used to assess the Plan's liabilities, including those related to death-in-service and incapacity benefits.

D 1.2 Under the PUC method a "projected accrued benefit" is calculated at the beginning of the year and again at the end of the year for each benefit that will accrue for all active members of the Plan. The "projected accrued benefit" is based on the Plan's accrual formula and upon service as of the beginning or end of the year, but using a member's final compensation, projected to the age at which the employee is assumed to leave active service. The Plan liability is the actuarial present value of the "projected accrued benefits" as of the beginning of the year for active members.

D 1.3 The liability for an underfunded plan has been classified as a current liability, a non-current liability, or a combination of both, based on guidelines issued under the Schedule III to the companies Act, 2013.
The current portion (determined on a plan-by-plan basis) is the amount by which the actuarial present value of benefits included in the benefit obligation payable in the next 12 months, or operating cycle if longer, exceeds the fair value of plan assets. The assets for an overfunded plan shall be classified as a non-current asset in a classified statement of financial position.

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E Principal Plan Provisions

A summary of the understanding of principal rules of the Plan

Gratuity Scheme

Benefits as per the Payment of Gratuity Act, 1972

Plan Service Definition	Number of Years of Service rounded to the nearest integer
Salary Definition	Last drawn Basic Salary + DA (if any)
Vesting Schedule	5 years; not applicable in case of death or disability, while in service.
Maximum Limit	Rs 20,00,000
Retirement Age	60 Years for Officers and Staff ; 58 years for Workers
Form of Payment	Lump sum

Benefit Payable upon:

Retirement	15/26*Salary*Service
Death	15/26*Salary*Service; Vesting does not apply
Disability	15/26*Salary*Service; Vesting does not apply
Withdrawal	15/26*Salary*Service

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F Frequently Asked Questions

1 What is the meaning of "Expected Term of Defined Benefit Obligation"?

The expected term of the defined benefit obligation is the weighted Average Future Working Lifetime (AFWL) which depends upon the estimated time and amount of benefits payments for the given set of members.
Based on the membership data and key assumptions such as mortality, withdrawal rate and salary increases, a spread of expected future benefit payments is determined. This in turn enables the estimation of a single weighted average which reflects an expected timing of the entire obligation. This estimate also represents a rough 'duration' of the liabilities

2 How is discount rate determined?

As per the guidance provided by AS15 and IND AS19 accounting standards, the discount rate needs to be determined by using an appropriate yield from government bonds at the valuation date taking into account the currency and expected term of the defined benefit obligations.
For International standards such as US GAAP and IFRS, it is recommended that the corresponding yields on high quality corporate bonds should be considered. However, due to the absence of a deep market of corporate bonds in India, the yield from government bonds is considered (similar to the approach adopted for AS15 and IND AS19).

3 Why is the discount rate used at beginning of the year reflected under current year expense table?

The current year expense reflects the cost of the liabilities increasing due to unwinding and the cost of additional benefits accruing over a year In determining these additional accrual costs over the period like service cost and interest cost, the assumptions at the beginning of the year need to be adopted.

4 Why is the accrued benefit different from Defined Benefit Obligation (DBO)?

Accrued benefit for a scheme is the total benefit all employees have accrued since their joining date till the valuation date. It reflects the total benefit that the member will be entitled to if he / she were to claim these immediately.
Defined Benefit Obligation (DBO) is the expected present value of the projected accrued benefit of the members till retirement age or earlier exit. The calculation of the DBO, therefore, involves use of certain financial and demographic assumptions such as discount rate, salary increases, withdrawal rate, mortality etc.

6 How are the expected benefit payments determined?

The undiscounted benefit payouts which are expected to be paid to the employees in the coming years if they leave the organization due to any reason such as retirement, death, disability or withdrawal.

7 Why do Actuarial Gains and Losses occur?

From one plan year to the next, we expect the liability at the beginning of the year to increase due to an additional year of accrual which is termed as service cost and due to interest (unwinding) which is termed as interest cost. Also the liability is expected to decrease by the benefit payments made by the company during the year.
However, in reality, the assumptions made at the start of the year are not always borne out – for example we may have expected salaries to increase by 10% but they actually increased by 12% or 14%. This impact which is included within the renewed data can impact the liabilities and is called an experience gain or loss.
Further, assumptions made at the end of the year may no longer be the same as those made at the start of the year – for example government bond yields could have gone up or come down.
The difference between assumptions at start and end has an impact on liabilities and is called a gain or loss due to changes in assumptions.

8 What is the difference between financial and demographic assumptions?

Financial assumptions generally affect the amount of future expected benefit payments whereas demographic assumptions generally affect the timing and number of the benefit payments. The discount rate is also a financial assumption which we use to discount the expected benefit payments and is linked to yields on government bonds.

9 Under what circumstances can the current liability be zero for a funded scheme?

Current liability represents the discounted value of the expected payments for the coming year. For a funded scheme if the assets are greater than the expected payouts to be made for the coming year, the current liability is zero as the expected benefit payments will be made from the fund.

10 What is Actuarial Practice Standard 27?

It is the latest Actuarial practice standard (APS) issued by Institute of Actuaries of India effective 1 January 2018, which superceeds all previous APSs and Guidance notes issued in the area of employee benefits. Whenever a member performs actuarial work related to pensions or other employee benefits in the specific areas covered in this standard, this standard will apply and the Fellow Member certifying must ensure compliance with the requirements of this Standard.

INDIA POWER CORPORATION LIMITED
Sector-V
Salt Lake City
Kolkata-700 091
Plot No.-X1-2&3, Block-EP

G Glossary

Service Cost

Service cost comprises:
(a) current service cost, which is the increase in the present value of the defined benefit obligation resulting from employee service in the current period;
(b) past service cost, which is the change in the present value of the defined benefit obligation for employee service in prior periods, resulting from a plan amendment (the introduction or withdrawal of, or changes to, a defined benefit plan) or a curtailment (a significant reduction by the entity in the number of employees covered by a plan); and
(c) any gain or loss on settlement.

Net interest on the net defined benefit liability (asset)

Net interest on the net defined benefit liability (asset) is the change during the period in the net defined benefit liability (asset) that arises from the passage of time.

Remeasurements of the net defined benefit liability (asset)

Remeasurements of the net defined benefit liability (asset) comprise:
(a) actuarial gains and losses;
(b) the return on plan assets, excluding amounts included in net interest on the net defined benefit liability (asset); and
(c) any change in the effect of the asset ceiling, excluding amounts included in net interest on the net defined benefit liability (asset).

Actuarial gains and losses

Actuarial gains and losses are changes in the present value of the defined benefit obligation resulting from:
(a) experience adjustments (the effects of differences between the previous actuarial assumptions and what has actually occurred);
and
(b) the effects of changes in actuarial assumptions.

Return on plan assets

The return on plan assets is interest, dividends and other income derived from the plan assets, together with realised and unrealised gains or losses on the plan assets, less:
(a) any costs of managing plan assets; and
(b) any tax payable by the plan itself, other than tax included in the actuarial assumptions used to measure the present value of the defined benefit obligation.

Settlement

A settlement is a transaction that eliminates all further legal or constructive obligations for part or all of the benefits provided under a defined benefit plan, other than a payment of benefits to, or on behalf of, employees that is set out in the terms of the plan and included in the actuarial assumptions.

Accrued Benefit Obligation

This is the present value of liability owed to employees under a scheme's benefit formula without any projected salary increases and discounted at a nominal rate of interest.

Vested Benefit Obligation

This is the present value of liability owed to employees under a scheme's benefit formula who are vested as of the valuation date.

INDIA POWER CORPORATION LIMITED
Sector-V
Salt Lake City
Kolklata-700 091
Plot No.-X1-283, Block-EP

Ritobrata Sarkar, Consulting Actuary
Fellow, Institute of Actuaries of India #5394

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India Power Corporation Limited

Ex Gratia Scheme (in lieu of Monthly Pension)

Reporting under Indian Accounting Standard (Ind AS) 19

Actuarial Valuation for Year ended 31 March 2018

Ritobrata Sarkar (Memb no - 5394)
Fellow, Institute of Actuaries of India

Date: 7 May 2018

India Power Corporation Limited
Ex Gratia Scheme (in lieu of Monthly Pension)
Reporting under Indian Accounting Standard (Ind AS) 19

Tables

Appendix

1 Introduction

1.1 This report is provided subject to the terms set out herein and in the Engagement Letter dated 4 April 2018 and the accompanying General Terms and Conditions of Business.

1.2 I have been requested by India Power Corporation Limited (the "Company") to report on the financial position of its Ex Gratia Scheme (the "Plan") liabilities for the Year ending 31 March 2018 and to calculate the accounting expenses associated with the Scheme for the Year ending 31 March 2018 as per the norms of Indian Accounting Standard (Ind AS) 19 issued by The Ministry of Corporate Affairs of the Central Government of India in consultation with the National Advisory Committee on Accounting Standards.

1.3 The results set out in this report are based on my understanding of Ind AS 19 and its application to the Plan. They have been prepared for the specific requirements of Ind AS 19 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.

1.4 This report complies with Actuarial Practice Standard 27 (APS 27) as published by the Institute of Actuaries of India (IAI), which came into effect from 1 January 2018.

1.5 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.

2 Summary of Results

2.1 The table below shows a summary of the key results for the Year ended 31 March 2018.

Assets / Liabilities	31-Mar-17	31-Mar-18
	INR	INR
1. Defined Benefit Obligation (DBO)*	3,892,223.00	5,414,000.00
2. Fair Value of Plan Assets (FVA)	0.00	0.00
3. Funded Status (Surplus/(Deficit))	(3,892,223.00)	(5,414,000.00)

Defined Benefit Cost	Year ended 31 March 2018
	INR
1. Service Cost	184,000.00
2. Defined Benefit Cost recognised in P&L	429,000.00
3. Remeasurements recognised in Other Comprehensive Income (OCI) Loss/(Gains)	2,004,777.00

The DBO as at 31 March 2017 is as certified by the previous actuary.

Key Assumptions used	31 March 2018
1. Discount Rate	7.60%
2. Rate of Salary increases	Not Applicable

2.2 Service cost represents the Current Service cost which is the cost associated with the Current period benefit accruals and the Past Service cost which is the change in the DBO resulting from changes in the benefit plan provisions for employee Service in prior periods. Total Employer expense is the expense under Ind AS 19; inclusive of Service Cost and Net Interest.

2.3 Table 1 shows the Disclosure of Defined Benefit Cost for the Year ending 31 March 2018

2.4 Table 2 shows the Net Balance Sheet position as at 31 March 2018

2.5 Table 3 shows the Changes in Benefit Obligations and Assets over the Year ending 31 March 2018

2.6 Table 4 shows the Additional Disclosure Information

2.7 Table 5 shows the Sensitivity Analysis

3 Information Sources

3.1 The actuarial valuation as at 31 March 2018 is done on the basis of the membership information provided by the company as at 31 March 2018.

3.2 The benefit payouts made during the period 31 March 2017 to 31 March 2018 have taken to be as provided by the company.

3.3 In preparing this Report, there has been a reliance on the completeness and accuracy of all the data and information, including Plan provisions, membership data and asset information provided orally and in writing by or on behalf of the Company by it's asset managers, plan administrators and other third parties. No detailed validation checks have been performed on the information provided. However, broad consistency checks have been carried out.

3.4 According to Ind AS 19 the discount rate should be based upon the market yields available on government bonds at the accounting date, corresponding to a estimated term that matches that of the obligations.The other assumptions should be chosen to reflect a best estimate of the future long-term experience.

The Discount Rate as at 31 March 2018 is based on the government bond yields as at 31 March 2018 .

3.5 The Ex Gratia Scheme is treated as a post-employment benefit under Ind AS 19 and the actuarial gains/losses are recognised immediately through the Other Comprehensive Income via retained earnings.

4 Conclusion

4.1 The assumptions and methodology used in compiling this report are consistent with my understanding of Ind AS 19.

4.2 The summary of the membership data used (including details of any modifications applied) in the calculations is set out in Appendix B.

4.3 The key assumptions used in the calculations are set out in Appendix C.

4.4 The results are particularly sensitive to some assumptions, such as the discount rate, level of salary increase and level of employee turnover. A decrease in the discount rate assumed or an increase in salary inflation will lead to an increase in reported cost.

4.5 The methodology used in the calculations is set out in Appendix D.

4.6 The benefits valued (including any discretionary benefits) in this Report are summarised in Appendix E.

4.7 Full actuarial valuations as at the start and end of the accounting period have been performed, based on member data and plan information provided at these dates.

4.8 The full results of our calculations are set out in Tables 1 to 7

4.9 I would be pleased to discuss this Report with you.

Yours faithfully

RSarkar

Ritobrata Sarkar (Memb no - 5394)
Fellow, Institute of Actuaries of India

TABLE 1

India Power Corporation Limited
Ex Gratia Scheme
Actuarial Calculations under Indian Accounting Standard (Ind AS) 19
Disclosure of Defined Benefit Cost for the Year ending 31 March 2018
Local currency - INR

A	Profit & Loss (P&L)	One Year Period Ending 31 March 2017	One Year Period Ending 31 March 2018
1	Current service cost	132,834.00	184,000.00
2	***Past service cost - plan amendments***	***0.00***	***0.00***
3	Curtailment cost / (credit)	0.00	0.00
4	Settlement cost / (credit)	0.00	0.00
5	Service cost	132,834.00	184,000.00
6	Net interest on net defined benefit liability / (asset)	299,148.00	245,000.00
7	Immediate recognition of (gains)/losses – other long term employee benefit plans	0.00	0.00
8	**Cost recognised in P&L**	**431,982.00**	**429,000.00**

B	Other Comprehensive Income (OCI)	31 March 2017	31 March 2018
1	Actuarial (gain)/loss due to DBO experience	(186,412.00)	2,129,777.00
2	Actuarial (gain)/loss due to DBO assumption changes	121,654.00	(125,000.00)
3	Actuarial (gain)/loss arising during period	(64,758.00)	2,004,777.00
4	Return on plan assets (greater)/less than discount rate	0.00	0.00
5	Actuarial (gains)/ losses recognized in OCI	(64,758.00)	2,004,777.00
6	Adjustment for limit on net asset	0.00	0.00

C	Defined Benefit Cost	31 March 2017	31 March 2018
1	Service cost	132,834.00	184,000.00
2	Net interest on net defined benefit liability / (asset)	299,148.00	245,000.00
3	Actuarial (gains)/ losses recognized in OCI	(64,758.00)	2,004,777.00
4	Immediate recognition of (gains)/losses – other long term employee benefit plans	0.00	0.00
5	**Defined Benefit Cost**	**367,224.00**	**2,433,777.00**

D	Assumptions as at 31 March 2017	31 March 2017	31 March 2018
1	Discount Rate	7.76%	7.12%
2	Rate of salary increase	Not Applicable	Not Applicable

TABLE 2

India Power Corporation Limited
Ex Gratia Scheme
Actuarial Calculations under Indian Accounting Standard (Ind AS) 19
Net Balance Sheet position as at 31 March 2018
Local currency - INR

A	Development of Net Balance Sheet Position	One Year Period Ending 31 March 2017	One Year Period Ending 31 March 2018
1	Defined benefit obligation (DBO)	(3,892,224.00)	(5,414,000.00)
2	Fair value of plan assets (FVA)	0.00	0.00
3	Funded status [surplus/(deficit)]	0.00	(5,414,000.00)
4	Effect of Asset ceiling	0.00	0.00
5	**Net defined benefit asset/ (liability)**	**(3,892,224.00)**	**(5,414,000.00)**

B	Reconciliation of Net Balance Sheet Position	31 March 2017	31 March 2018
1	Net defined benefit asset/ (liability) at end of prior period	(4,185,000.00)	(3,892,223.00)
2	Service cost	(132,834.00)	(184,000.00)
3	Net interest on net defined benefit (liability)/ asset	(299,148.00)	(245,000.00)
4	Amount recognised in OCI	64,758.00	(2,004,777.00)
5	Employer contributions	660,000.00	0.00
6	Benefit paid directly by the Company	0.00	912,000.00
7	Acquisitions credit/ (cost)	0.00	0.00
8	Divestitures	0.00	0.00
9	Cost of termination benefits	0.00	0.00
10	**Net defined benefit asset/ (liability) at end of current period**	**(3,892,224.00)**	**(5,414,000.00)**

C	Assumptions as at 31 March 2018	31 March 2017	31 March 2018
1	Discount Rate	7.12%	7.60%
2	Rate of salary increase	Not Applicable	Not Applicable

TABLE 3

India Power Corporation Limited
Ex Gratia Scheme
Actuarial Calculations under Indian Accounting Standard (Ind AS) 19
Changes in Benefit Obligations and Assets over the Year ending 31 March 2018
Local currency - INR

A	Change in Defined Benefit Obligation (DBO)	One Year Period Ending 31 March 2017	One Year Period Ending 31 March 2018
1	**DBO at end of prior period**	**4,185,000.00**	**3,892,223.00**
2	Current service cost	132,834.00	184,000.00
3	Interest cost on the DBO	299,148.00	245,000.00
4	Curtailment (credit)/ cost	0.00	0.00
5	Settlement (credit)/ cost	0.00	0.00
6	***Past service cost - plan amendments***	***0.00***	***0.00***
7	Acquisitions (credit)/ cost	0.00	0.00
8	Actuarial (gain)/loss - experience	(186,412.00)	2,129,777.00
9	Actuarial (gain)/loss - demographic assumptions	0.00	0.00
10	Actuarial (gain)/loss - financial assumptions	121,654.00	(125,000.00)
11	Benefits paid directly by the Company	0.00	(912,000.00)
12	Benefits paid from plan assets	(660,000.00)	0.00
13	**DBO at end of current period**	**3,892,224.00**	**5,414,000.00**

B	Change in Fair Value of Assets	31 March 2017	31 March 2018
1	**Fair value of assets at end of prior period**	**0.00**	**0.00**
2	Acquisition adjustment	0.00	0.00
3	Interest income on plan assets	0.00	0.00
4	Employer contributions	660,000.00	0.00
5	Return on plan assets greater/(lesser) than discount rate	0.00	0.00
6	Benefits paid	(660,000.00)	0.00
7	**Fair Value of assets at the end of current period**	**0.00**	**0.00**

TABLE 4

India Power Corporation Limited
Ex Gratia Scheme
Actuarial Calculations under Indian Accounting Standard (Ind AS) 19
Additional Disclosure Information
Local currency - INR

A	Expected benefit payments for the year ending	
1	March 31, 2019	357,490.00
2	March 31, 2020	836,000.00
3	March 31, 2021	1,051,000.00
4	March 31, 2022	1,030,000.00
5	March 31, 2023	958,000.00
6	March 31, 2024 to March 31, 2028	2,339,000.00

B	Expected employer contributions for the period ending 31 March 2019	Not Applicable
C	Weighted average duration of defined benefit obligation	5 Years
D	Accrued Benefit Obligation at 31 March 2018	5,414,000.00

E Plan Asset Information as at 31 March 2018	Percentage
Government of India Securities (Central and State)	Not Applicable
High quality corporate bonds (including Public Sector Bonds)	Not Applicable
Equity shares of listed companies	Not Applicable
Property	Not Applicable
Cash (including Special Deposits)	Not Applicable
Schemes of insurance - conventional products	Not Applicable
Schemes of insurance - ULIP products	Not Applicable
Other	Not Applicable
Total	**Not Applicable**

Note: This report provides basic information in relation to plan assets. Additional input may be required by the Company in relation to the plan asset disclosures specified in paragraphs 142, 143 of Ind AS 19

F	Current and Non Current Liability Breakup as at	31 March 2017 INR	31 March 2018 INR
1	Current Liability	(507,044.00)	(345,000.00)
2	Non Current Asset/ (Liability)	(3,385,179.00)	(5,069,000.00)
3	**Net Asset/(Liability) as at 31 March 2018**	**(3,892,223.00)**	**(5,414,000.00)**

TABLE 5

India Power Corporation Limited
Ex Gratia Scheme
Actuarial Calculations under Indian Accounting Standard (Ind AS) 19
Sensitivity Analysis
Local currency - INR

DBO on base assumptions as at 31 March 2018 *These assumptions are summarised in Appendix C of the report.*	**5,414,000.00**
A Discount Rate	
Discount Rate as at 31 March 2018	**7.60%**
1 Effect on DBO due to 1% increase in Discount Rate	(243,000.00)
Percentage Change	*-4%*
2 Effect on DBO due to 1% decrease in Discount Rate	267,000.00
Percentage Change	*5%*
B Salary escalation rate	
Salary Escalation Rate as at 31 March 2018	**Not Applicable**
1 Effect on DBO due to 1% increase in Salary Escalation Rate	0.00
Percentage Change	*0%*
2 Effect on DBO due to 1% decrease in Salary Escalation Rate	0.00
Percentage Change	*0%*
C Withdrawal Rate	
Withdrawal Rate as at 31 March 2018	**Less than 40 - 4.2%40 and above - Nil**
1 Effect on DBO due to 1% increase in Withdrawal Rate	(1,000.00)
Percentage Change	*0.00%*
2 Effect on DBO due to 1% decrease in Withdrawal Rate	1,000.00
Percentage Change	*0.00%*
D Mortality Rate	
Mortality Rate as at 31 March 2018	**Indian Assured Lives Mortality (2006-08) Ult.**
1 Effect on DBO due to 10% increase in Mortality Rate	5,000.00
Percentage Change	*0.0%*
2 Effect on DBO due to 10% decrease in Mortality Rate	(5,000.00)
Percentage Change	*0.00%*

Method used for sensitivity analysis: The sensitivity results above determine their individual impact on the Plan's end of year Defined Benefit Obligation. In reality, the Plan is subject to multiple external experience items which may move the Defined Benefit Obligation in similar or opposite directions, while the Plan's sensitivity to such changes can vary over time.

A Understanding Actuarial Gains and Losses

A 1.1 Understanding Actuarial Gains and Losses

Possible reasons for Actuarial Gains or Losses on Plan Liabilities	
1	If the actual attrition, retirement or mortality experience turns out to be higher or lower than expected based on the assumptions made at the start of the accounting period, it would lead to an Actuarial Gain or Loss on Plan Liabilities.
2	If the salary increases are higher or lower than expected based on the assumption made at the start of the accounting period , it would lead to an Actuarial Gain or Loss on Plan Liabilities.
3	If the actuarial assumptions of salary increase, attrition rate and discount rate change from one valuation year to another, it may lead to Actuarial Gain or Loss on Plan Liabilities.
4	Any significant changes in the demographic profile may also lead to Actuarial Gain or Loss on Plan Liabilities such as a large growth of the employee count from new joinees.

Possible reasons for experience Gains or Losses on Plan Assets:	
1	Return on plan assets greater/(lesser) than discount rate. For example, if the discount rate was 8% and the fund actually earned 7%, it would result in an actuarial loss on assets.

The reasons explained above aim at helping to understand the possible reasons for the occurrence of Actuarial Gains or Losses in an intervaluation period. Specific reasons for Actuarial Gains or Losses as entailed in Table 3 would require a more detailed investigation.

B Summary of Membership Data and Analysis

B 1.1 Below is a summary of the active members of the plan:

	31-Mar-17	31-Mar-18
Number of employees	328	303
Average attained age (years)	50.23	50.53
Average past service (years)	Not Available	24.74

Major Data Observations: None

C Assumptions

C1.1 The valuation summarised in this report involves actuarial calculations that require assumptions about future events. India Power Corporation Limited is responsible for the selection of the assumptions.

C1.2 I have not carried out a formal experience analysis within the last 3 years for the salary escalation and withdrawal rate in the process of advising on material actuarial assumptions. The importance, implication and broad guidelines for future salary increase assumption and withdrawal rate assumption have been discussed with the Company. The Company feels that the salary increase assumption and withdrawal rate assumption used in this report best represent their long term perspective. i believe that the assumptions used in this report are reasonable for the purpose for which they have been used. However I recommend an experience analysis be carried out once every three years for the purpose of validating the assumptions.

C1.3 The actuarial assumptions (demographic & financial) employed for the calculations as at 31 March 2017 and 31 March 2018 are as follows.

Financial & Demographic Assumptions	31-Mar-17	31-Mar-18
Discount Rate	7.12%	7.60%
Salary Escalation Rate	Not Applicable	Not Applicable
Mortality Rate	Indian Assured Lives Mortality (2006-08) Ult.	Indian Assured Lives Mortality (2006-08) Ult.
Withdrawal Rate	Less than 40 - 4.2% 40 and above - Nil	Less than 40 - 4.2% 40 and above - Nil

Specimen Mortality rates

Age	Rates	Age	Rates
20	0.000888	*45*	0.002874
25	0.000984	*50*	0.004946
30	0.001056	*55*	0.007888
35	0.001282	*60*	0.011534
40	0.001803	*65*	0.017009

C1.4 ***Notes:***

1 The effects of Morbidity and Withdrawal have been factored by constructing a Multiple Decrement Table taking into account the above Mortality table.

2 Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as:
a. Plan experience differing from that anticipated by the economic or demographic assumptions
b. Changes in economic or demographic assumptions
c. Changes in plan provisions or applicable law
d. Significant events since last actuarial valuation

D Methodology

D 1.1 The Projected Unit Credit (PUC) actuarial method has been used to assess the Plan's liabilities, including those related to death-in-service and incapacity benefits.

D 1.2 Under the PUC method a "projected accrued benefit" is calculated at the beginning of the year and again at the end of the year for each benefit that will accrue for all active members of the Plan. The "projected accrued benefit" is based on the Plan's accrual formula and upon service as of the beginning or end of the year, but using a member's final compensation, projected to the age at which the employee is assumed to leave active service. The Plan liability is the actuarial present value of the "projected accrued benefits" as of the beginning of the year for active members.

D 1.3 The liability for an underfunded plan has been classified as a current liability, a non-current liability, or a combination of both, based on guidelines issued under the Schedule III to the companies Act, 2013.
The current portion (determined on a plan-by-plan basis) is the amount by which the actuarial present value of benefits included in the benefit obligation payable in the next 12 months, or operating cycle if longer, exceeds the fair value of plan assets. The assets for an overfunded plan shall be classified as a non-current asset in a classified statement of financial position.

E Principal Plan Provisions

A summary of the understanding of principal rules of the Plan

Ex Gratia Scheme

One time retirement benefit in lieu of monthly pension by paying a lump sum amount in the manner detailed below to Workmen

Completed years of Service between 20 years - 25 years	INR 24,000
Completed years of Service between 26 years - 30 years	INR 30,000
Completed years of Service between 31 years - 35 years	INR 36,000
Completed years of Service 36 years	INR 47,000

For any fraction period service will be rounded to the nearest year

I am not aware of any discretionary practices and benefits which may have been provided in the past and/or have become an obligation for the company.

F Frequently Asked Questions

1 What is the meaning of "Expected Term of Defined Benefit Obligation"?

The expected term of the defined benefit obligation is the weighted Average Future Working Lifetime (AFWL) which depends upon the estimated time and amount of benefits payments for the given set of members.
Based on the membership data and key assumptions such as mortality, withdrawal rate and salary increases, a spread of expected future benefit payments is determined. This in turn enables the estimation of a single weighted average which reflects an expected timing of the entire obligation. This estimate also represents a rough 'duration' of the liabilities

2 How is discount rate determined?

As per the guidance provided by AS15 and IND AS19 accounting standards, the discount rate needs to be determined by using an appropriate yield from government bonds at the valuation date taking into account the currency and expected term of the defined benefit obligations.
For International standards such as US GAAP and IFRS, it is recommended that the corresponding yields on high quality corporate bonds should be considered. However, due to the absence of a deep market of corporate bonds in India, the yield from government bonds is considered (similar to the approach adopted for AS15 and IND AS19).

3 Why is the discount rate used at beginning of the year reflected under current year expense table?

The current year expense reflects the cost of the liabilities increasing due to unwinding and the cost of additional benefits accruing over a year. In determining these additional accrual costs over the period like service cost and interest cost, the assumptions at the beginning of the year need to be adopted.

4 Why is the accrued benefit different from Defined Benefit Obligation (DBO)?

Accrued benefit for a scheme is the total benefit all employees have accrued since their joining date till the valuation date. It reflects the total benefit that the member will be entitled to if he / she were to claim these immediately.
Defined Benefit Obligation (DBO) is the expected present value of the projected accrued benefit of the members till retirement age or earlier exit. The calculation of the DBO, therefore, involves use of certain financial and demographic assumptions such as discount rate, salary increases, withdrawal rate, mortality etc.

6 How are the expected benefit payments determined?

The undiscounted benefit payouts which are expected to be paid to the employees in the coming years if they leave the organization due to any reason such as retirement, death, disability or withdrawal.

7 Why do Actuarial Gains and Losses occur?

From one plan year to the next, we expect the liability at the beginning of the year to increase due to an additional year of accrual which is termed as service cost and due to interest (unwinding) which is termed as interest cost. Also the liability is expected to decrease by the benefit payments made by the company during the year.
However, in reality, the assumptions made at the start of the year are not always borne out – for example we may have expected salaries to increase by 10% but they actually increased by 12% or 14%. This impact which is included within the renewed data can impact the liabilities and is called an experience gain or loss.
Further, assumptions made at the end of the year may no longer be the same as those made at the start of the year – for example government bond yields could have gone up or come down.
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G Glossary

Service Cost	Service cost comprises: (a) current service cost, which is the increase in the present value of the defined benefit obligation resulting from employee service in the current period; (b) past service cost, which is the change in the present value of the defined benefit obligation for employee service in prior periods, resulting from a plan amendment (the introduction or withdrawal of, or changes to, a defined benefit plan) or a curtailment (a significant reduction by the entity in the number of employees covered by a plan); and (c) any gain or loss on settlement.
Net interest on the net defined benefit liability (asset)	Net interest on the net defined benefit liability (asset) is the change during the period in the net defined benefit liability (asset) that arises from the passage of time.
Remeasurements of the net defined benefit liability (asset)	Remeasurements of the net defined benefit liability (asset) comprise: (a) actuarial gains and losses; (b) the return on plan assets, excluding amounts included in net interest on the net defined benefit liability (asset); and (c) any change in the effect of the asset ceiling, excluding amounts included in net interest on the net defined benefit liability (asset).
Actuarial gains and losses	Actuarial gains and losses are changes in the present value of the defined benefit obligation resulting from: (a) experience adjustments (the effects of differences between the previous actuarial assumptions and what has actually occurred); and (b) the effects of changes in actuarial assumptions.
Return on plan assets	The return on plan assets is interest, dividends and other income derived from the plan assets, together with realised and unrealised gains or losses on the plan assets, less: (a) any costs of managing plan assets; and (b) any tax payable by the plan itself, other than tax included in the actuarial assumptions used to measure the present value of the defined benefit obligation.
Settlement	A settlement is a transaction that eliminates all further legal or constructive obligations for part or all of the benefits provided under a defined benefit plan, other than a payment of benefits to, or on behalf of, employees that is set out in the terms of the plan and included in the actuarial assumptions.
Accrued Benefit Obligation	This is the present value of liability owed to employees under a scheme's benefit formula without any projected salary increases and discounted at a nominal rate of interest.
Vested Benefit Obligation	This is the present value of liability owed to employees under a scheme's benefit formula who are vested as of the valuation date.

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India Power Corporation Limited

Leave Benefit Scheme

Reporting under Indian Accounting Standard (Ind AS) 19

Actuarial Valuation for Year ended 31 March 2018

Ritobrata Sarkar (Memb no - 5394)
Fellow, Institute of Actuaries of India

Date: 7 May 2018

India Power Corporation Limited
Leave Benefit Scheme
Reporting under Indian Accounting Standard (Ind AS) 19

Tables

Appendix

1 Introduction

1.1 This report is provided subject to the terms set out herein and in the Engagement Letter dated 4 April 2018 and the accompanying General Terms and Conditions of Business.

1.2 I have been requested by India Power Corporation Limited (the "Company") to report on the financial position of its Leave Benefit Scheme (the "Plan") liabilities for the Year ending 31 March 2018 and to calculate the accounting expenses associated with the Scheme for the Year ending 31 March 2018 as per the norms of Indian Accounting Standard (Ind AS) 19 issued by The Ministry of Corporate Affairs of the Central Government of India in consultation with the National Advisory Committee on Accounting Standards.

1.3 The results set out in this report are based on my understanding of Ind AS 19 and its application to the Plan. They have been prepared for the specific requirements of Ind AS 19 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.

1.4 This report complies with Actuarial Practice Standard 27 (APS 27) as published by the Institute of Actuaries of India (IAI), which came into effect from 1 January 2018.

1.5 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

2 Summary of Results

2.1 The table below shows a summary of the key results for the Year ended 31 March 2018.

Assets / Liabilities	31-Mar-17	31-Mar-18
	INR	INR
1. Defined Benefit Obligation (DBO)*	26,761,761 00	32,221,000.00
2. Fair Value of Plan Assets (FVA)	0.00	0.00
3. Funded Status (Surplus/(Deficit))	(26,761,761 00)	(32,221,000 00)

The DBO as on 31 March 2017 is as certified by previous Actuary.

Defined Benefit Cost	Year ended 31 March 2018
	INR
1. Service Cost	5,412,000.00
2. Defined Benefit Cost recognised in P&L	14,795,368.00
3. Remeasurements recognised in Other Comprehensive Income (OCI) Loss/(Gains)	0.00

Key Assumptions used	31 March 2018
1. Discount Rate	7.60%
2. Rate of Salary increases	5.00%

2.2 Service cost represents the Current Service cost which is the cost associated with the Current period benefit accruals and the Past Service Cost which is the change in the DBO resulting from changes in the benefit plan provisions for employee Service in prior periods. Total Employer expense is the expense under Ind AS 19; inclusive of Service Cost and Net Interest.

2 3 Table 1 shows the Disclosure of Defined Benefit Cost for the Year ending 31 March 2018

2.4 Table 2 shows the Net Balance Sheet position as at 31 March 2018

2.5 Table 3 shows the Changes in Benefit Obligations and Assets over the Year ending 31 March 2018

2.6 Table 4 shows the Additional Disclosure Information

2.7 Table 5 shows the Sensitivity Analysis

3 Information Sources

3.1 The actuarial valuation as at 31 March 2018 has been carried out on the basis of the membership data provided by the company as at 31 March 2018 .

3.2 The principal rules of the Leave Benefit Scheme as at 31 March 2018 are as provided by the company. A summary of the plan provisions has been mentioned in Appendix E.

3.3 In preparing this Report, there has been a reliance on the completeness and accuracy of all the data and information, including Plan provisions, membership data and asset information provided orally and in writing by or on behalf of the Company and its advisers. No detailed validation checks have been performed on the information provided However, broad consistency checks have been carried out.

3.4 According to Ind AS 19 the discount rate should be based upon the market yields available on government bonds at the accounting date, corresponding to a estimated term that matches that of the obligations.The other assumptions should be chosen to reflect a best estimate of the future long-term experience.

The Discount Rate as at 31 March 2018 is based on the government bond yields as at 28 March 2018 .

3.5 The Leave Benefit Scheme is treated as a other long term benefit under Ind AS 19 and the actuarial gains/losses are recognised immediately through the P&L Account.

3.6 The benefit payouts made and expected to be paid during the period 31 March 2017 to 31 March 2018 have taken to be as provided by the company

4 Conclusion

4.1 The assumptions and methodology used in compiling this report are consistent with my understanding of Ind AS 19

4.2 The summary of the membership data used (including details of any modifications applied) in the calculations is set out in Appendix B.

4.3 The key assumptions used in the calculations are set out in Appendix C.

4.4 The results are particularly sensitive to some assumptions, such as the discount rate, level of salary increase and level of employee turnover. A decrease in the discount rate assumed or an increase in salary inflation will lead to an increase in reported cost.

4.5 The methodology used in the calculations is set out in Appendix D.

4.6 The benefits valued (including any discretionary benefits) in this Report are summarised in Appendix E.

4.7 Full actuarial valuations as at the start and end of the accounting period have been performed, based on member data and plan information provided at these dates.

4.8 The full results of our calculations are set out in Tables 1 to 5.

4.9 I would be pleased to discuss this Report with you.

Yours faithfully

Ritobrata Sarkar (Memb no - 5394)
Fellow, Institute of Actuaries of India

TABLE 1

India Power Corporation Limited
Leave Benefit Scheme
Actuarial Calculations under Indian Accounting Standard (Ind AS) 19
Disclosure of Defined Benefit Cost for the Year ending 31 March 2018
Local currency - INR

A Profit & Loss (P&L)	One Year Period Ending 31 March 2017	One Year Period Ending 31 March 2018
1 Current service cost	2,575,442 00	5,412,000 00
2 Past service cost - plan amendements	0.00	0.00
3 Curtailment cost / (credit)	0.00	0 00
4 Settlement cost / (credit)	0.00	0.00
5 Service cost	2,575,442.00	5,412,000.00
6 Net interest on net defined benefit liability / (asset)	1,747,824.00	1,586,000.00
7 Immediate recognition of (gains)/losses – other long term employee benefit		4,803,495.00	7,797,368 00
8 Cost recognised In P&L	**9,126,761.00**	**14,795,368.00**

B Other Comprehensive Income (OCI)	31 March 2017	31 March 2018
1 Actuarial (gain)/loss due to DBO experience	3,645,907.00	5,176,368.00
2 Actuarial (gain)/loss due to DBO assumption changes	1,157,588.00	2,621,000.00
3 Actuarial (gain)/loss arising during period	4,803,495.00	7,797,368.00
4 Return on plan assets (greater)/less than discount rate	0.00	0.00
5 Actuarial (gains)/ losses recognized in OCI	**0.00**	**0.00**
6 Adjustment for limit on net asset	0.00	0 00

C Defined Benefit Cost	31 March 2017	31 March 2018
1 Service cost	2,575,442.00	5,412,000.00
2 Net interest on net defined benefit liability / (asset)	1,747,824.00	1,586,000.00
3 Actuarial (gains)/ losses recognized in OCI	0.00	0 00
4 Immediate recognition of (gains)/losses – other long term employee benefit		4,803,495.00	7,797,368 00
5 Defined Benefit Cost	**9,126,761.00**	**14,795,368.00**

D Assumptions as at	31 March 2017	31 March 2018
1 Discount Rate	7.76%	7.18%
2 Rate of salary increase	3.50%	3.50%

TABLE 2

India Power Corporation Limited
Leave Benefit Scheme
Actuarial Calculations under Indian Accounting Standard (Ind AS) 19
Net Balance Sheet position as at 31 March 2018
Local currency - INR

A	Development of Net Balance Sheet Position	One Year Period Ending 31 March 2017	One Year Period Ending 31 March 2018
1	Defined benefit obligation (DBO)	(26,761,761.00)	(32,221,000.00)
2	Fair value of plan assets (FVA)	0.00	0.00
3	Funded status [surplus/(deficit)]	(26,761,761.00)	(32,221,000.00)
4	Effect of Asset ceiling	0.00	0.00
5	**Net defined benefit asset/ (liability)**	**(26,761,761.00)**	**(32,221,000.00)**

B	Reconciliation of Net Balance Sheet Position	31 March 2017	31 March 2018
1	Net defined benefit asset/ (liablity) at end of prior period	(27,412,000.00)	(26,761,761.00)
2	Service cost	(2,575,442.00)	(5,412,000.00)
3	Net interest on net defined benefit liabilly/ (asset)	(1,747,824.00)	(1,586,000.00)
4	Actuarial (losses)/ gains	(4,803,495.00)	(7,797,368.00)
5	Employer contributions	0.00	0.00
6	Benefit paid directly by the Company	9,777,000.00	9,336,129.00
7	Acquisitions credit/ (cost)	0.00	0.00
8	Divestitures	0.00	0.00
9	Cost of termination benefits	0.00	0.00
10	**Net defined benefit asset/ (liablity) at end of current period**	**(26,761,761.00)**	**(32,221,000.00)**

C	Assumptions as at	31 March 2017	31 March 2018
1	Discount Rate	7.18%	7.60%
2	Rate of salary increase	3.50%	5.00%

TABLE 3

India Power Corporation Limited
Leave Benefit Scheme
Actuarial Calculations under Indian Accounting Standard (Ind AS) 19
Changes In Benefit Obligations and Assets over the Year ending 31 March 2018
Local currency - INR

A	Change in Defined Benefit Obligation (DBO)	One Year Period Ending 31 March 2017	One Year Period Ending 31 March 2018
1	**DBO at end of prior period**	**27,412,000.00**	**26,761,761.00**
2	Current service cost	2,575,442.00	5,412,000.00
3	Interest cost on the DBO	1,747,824.00	1586000 00
4	Curtailment (credit)/ cost	0.00	0.00
5	Settlement (credit)/ cost	0.00	0.00
6	Past service cost - plan amendements	0.00	0.00
7	Acquisitions (credit)/ cost	0.00	0.00
8	Actuarial (gain)/loss - experience	3,645,907.00	5,176,368.00
9	Actuarial (gain)/loss - demographic assumptions	0.00	0.00
10	Actuarial (gain)/loss - financial assumptions	1,157,588.00	2,621,000.00
11	Benefits paid directly by the Company	(9,777,000.00)	(9,336,129.00)
12	Benefits paid from plan assets	0.00	0.00
13	**DBO at end of current period**	**26,761,761.00**	**32,221,000.00**

B	Change in Fair Value of Assets	31 March 2017	31 March 2018
1	**Fair value of assets at end of prior period**	0.00	**0.00**
2	Acquisition adjustment	0.00	0.00
3	Interest income on plan assets	0.00	0.00
4	Employer contributions	0.00	0.00
5	Return on plan assets greater/(lesser) than discount rate	0.00	0.00
6	Benefits paid	0.00	0.00
7	**Fair Value of assets at the end of current period**	**0.00**	**0.00**

TABLE 4

India Power Corporation Limited
Leave Benefit Scheme
Actuarial Calculations under Indian Accounting Standard (Ind AS) 19
Additional Disclosure Information
Local currency - INR

A	Expected benefit payments for the year ending	
1	March 31, 2019	1,387,000.00
2	March 31, 2020	3,983,000.00
3	March 31, 2021	5,147,000.00
4	March 31, 2022	4,194,000.00
5	March 31, 2023	4,393,000.00
6	March 31, 2024 to March 31, 2028	24,314,000.00

B	Weighted average duration of defined benefit obligation	9 Years

C	Accrued Benefit Obligation at 31 March 2018	21,859,000

D Plan Asset Information as at 31 March 2018	Percentage
Government of India Securities (Central and State)	Not Applicable
High quality corporate bonds (including Public Sector Bonds)	Not Applicable
Equity shares of listed companies	Not Applicable
Property	Not Applicable
Cash (including Special Deposits)	Not Applicable
Schemes of insurance - conventional products	Not Applicable
Schemes of insurance - ULIP products	Not Applicable
Other	Not Applicable
Total	**Not Applicable**

Note: This report provides basic information in relation to plan assets. Additional input may be required by the Company in relation to the plan asset disclosures specified in paragraphs 142, 143 of Ind AS 19

E	Current and Non Current Liability Breakup as at	31 March 2017 INR	31 March 2018 INR
1	Current Liability	(5,385,346.00)	(1,337,000.00)
2	Non Current Asset/ (Liability)	(21,376,415.00)	(30,884,000.00)
3	**Net Asset/(Liability) as at 31 March 2018**	**(26,761,761.00)**	**(32,221,000.00)**

The liability for an underfunded plan has been classified as a current liability, a non-current liability, or a combination of both, based on guidelines issued under Schedule III to the Companies Act,2013.
The current portion (determined on a plan-by-plan basis) is the amount by which the actuarial present value of benefits included in the benefit obligation payable in the next 12 months, or operating cycle if longer, exceeds the fair value of plan assets. The assets for an overfunded plan shall be classified as a non-current asset in a classified statement of financial position.

India Power Corporation Limited
Leave Benefit Scheme
Actuarial Calculations under Indian Accounting Standard (Ind AS) 19
Additional Disclosure Information (Continued)

Description of Plan Characteristics and Associated Risks

The Leave scheme is a final salary Defined Benefit Plan that provides for a lump sum payment made on exit either by way of retirement, death, disability or voluntary withdrawal. The benefits are defined on the basis of final salary and the accumulated leave balances and paid as lump sum at exit. The Plan design means the risks commonly affecting the liabilities and the financial results are expected to be.

1 Interest rate risk : The defined benefit obligation calculated uses a discount rate based on government bonds. If bond yields fall, the defined benefit obligation will tend to increase

2 Salary Inflation risk : Higher than expected increases in salary will increase the defined benefit obligation

3 Demographic risk : This is the risk of variability of results due to unsystematic nature of decrements that include mortality, withdrawal, disability and retirement. The effect of these decrements on the defined benefit obligation is not straight forward and depends upon the combination of salary increase, discount rate and vesting criteria. It is important not to overstate withdrawals because in the financial analysis the retirement benefit of a short career employee typically costs less per year as compared to a long service employee.

4 Change in Leave Balances : This is the risk of variability of results due to a significant variation from expected accumulation of leave balances. All other aspects remaining same, higher than expected increase in the leave balances will increase the defined benefit obligation.

TABLE 5

India Power Corporation Limited
Leave Benefit Scheme
Actuarial Calculations under Indian Accounting Standard (Ind AS) 19
Sensitivity Analysis
Local currency - INR

DBO on base assumptions as at 31 March 2018 *These assumptions are summarised in Appendix C of the report.*	**32,221,000.00**
A Discount Rate	
Discount Rate as at 31 March 2018	**7.60%**
1 Effect on DBO due to 1% increase in Discount Rate	(2,456,000.00)
Percentage Impact	*-8%*
2 Effect on DBO due to 1% decrease in Discount Rate	2,841,000.00
Percentage Impact	*9%*
B Salary Escalation Rate	
Salary Escalation Rate as at 31 March 2018	**5.00%**
1 Effect on DBO due to 1% increase in Salary Escalation Rate	2,888,000.00
Percentage Impact	*9%*
2 Effect on DBO due to 1% decrease in Salary Escalation Rate	(2,535,000.00)
Percentage Impact	*-8%*

Method used for sensitivity analysis. The sensitivity results above determine their individual impact on the Plan's end of year Defined Benefit Obligation In reality, the Plan is subject to multiple external experience items which may move the Defined Benefit Obligation in similar or opposite directions, while the Plan's sensitivity to such changes can vary over time.

A Understanding Actuarial Gains and Losses

A 1.1 Understanding Actuarial Gains and Losses

	Possible reasons for Actuarial Gains or Losses on Plan Liabilities
1	If the actual attntion, retirement or mortality experience turns out to be higher or lower than expected based on the assumptions made at the start of the accounting period, it would lead to an Actuarial Gain or Loss on Plan Liabilities.
2	If the salary increases are higher or lower than expected based on the assumption made at the start of the accounting period , it would lead to an Actuarial Gain or Loss on Plan Liabilities.
3	If the actuarial assumptions of salary increase, attrition rate and discount rate change from one valuation year to another, it may lead to Actuarial Gain or Loss on Plan Liabilities.
4	Any significant changes in the demographic profile may also lead to Actuarial Gain or Loss on Plan Liabilities such as a large growth of the employee count from new joinees.
5	If the actual leave availment from the current year entitlement is different than the Availment Pattern assumed at the start of the accounting period, it may leave to Actuarial Gain or Loss on Plan Liabilities.

	Possible reasons for experience Gains or Losses on Plan Assets:
1	Return on plan assets grealer/(lesser) than discount rate. For example, if the discount rate was 8% and the fund actually earned 7%, it would result in an actuarial loss on assets.

The reasons explained above aim at helping to understand the possible reasons for the occurrence of Actuarial Gains or Losses in an intervaluation period. Specific reasons for Actuarial Gains or Losses as entailed in Table 3 would require a more detailed investigation.

B Summary of Membership Data

B 1.1 Below is a summary of the active members of the plan:

	31-Mar-17	31-Mar-18
Number of employees	548	537
Total monthly salary (INR)	15,515,091	17,454,592
Total annual Salary (INR)	186,181,092	209,455,104
Average annual Salary (INR)	339,747	390,047
Average attained age (years)	Not Available	47.11
Leave Balances (In days)	35,793.00	35,664.29

The membership summary as at 31 March 2017 is as certified by the previous actuary.

B 1.2 *Spilit of Liability*

Branch	31-Mar-17	31-Mar-18
Wind Division	*97,068*	*141,000*
Power Division	*26,664,693*	*32,080,000*
Total	***26,761,761***	***32,221,000***

B 1.3 *Key Mangerial Liability*

Employee Id	*Company*	*Liability (INR)*
300739	***India Power Corporation Limited***	***298,200***
300167	***India Power Corporation Limited***	***193,700***
300541	***India Power Corporation Limited***	***259,200***
300570	***India Power Corporation Limited***	***191,700***
300448	***India Power Corporation Limited***	***165,200***

C Assumptions

C1.1 The valuation summarised in this report involves actuarial calculations that require assumptions about future events. India Power Corporation Limited is responsible for the selection of the assumptions.

C1.2 I have not carried out a formal experience analysis within the last 3 years for the salary escalation and withdrawal rate in the process of advising on material actuarial assumptions The importance, implication and broad guidelines for future salary increase assumption and withdrawal rate assumption have been discussed with the Company. The Company feels that the salary increase assumption and withdrawal rate assumption used in this report best represent their long term perspective. I believe that the assumptions used in this report are reasonable for the purpose for which they have been used. However I recommend an experience analysis be carried out once every three years for the purpose of validating the assumptions.

C1.3 The actuarial assumptions (demographic & financial) employed for the calculations as at 31 March 2017 and 31 March 2018 are as follows.

Financial & Demographic Assumptions	31-Mar-17	31-Mar-18
Discount Rate	7 18%	7.60%
Salary Escalation Rate	3.50%	5 00%
Mortality Rate	Indian Assured Lives Mortality (2006-08) (modified) Ult	Indian Assured Lives Mortality (2006-08) (modified) Ult
Withdrawal Rate	Less than 40 - 4.2% 40 and above - Nil	Less than 40 - 4.2% 40 and above - Nil

******The assumptions as at 31 March 2017 are as certified by the previous actuary.***

Specimen Mortality rates

Age	Rates	Age	Rates
20	0.000888	*45*	0.002874
25	0.000984	*50*	0.004946
30	0.001056	*55*	0.007888
35	0.001282	*60*	0.011534
40	0.001803	*65*	0.017009

C1.3 ***Notes:***

1 The effects of Mortality and Withdrawal have been factored by constructing a Multiple Decrement Table taking into account the above Mortality table.

2 Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as:
a. Plan experience differing from that anticipated by the economic or demographic assumptions
b. Changes in economic or demographic assumptions
c. Changes in plan provisions or applicable law
d. Significant events since last actuarial valuation

3 Leave availed is taken into account while calculating service cost, according to the trend provided by the company. Of the total leave entitlement during the year we have assumed 50% of days of leave to accumulate for encashment at decrement age. The remaining leave days are assumed to be availed during the year.

4 I understand that the practice in the company is such that the leave accumulations can be utilized if an employee exhausts his/her annual entitlement (following the "Last in first out" (LIFO) method), whilst also gives an option to an employee to encash the accrued leave balances at the time of exit.

In order to determine this likelihood or probability of availment / encashment, I check whether employees are consistently availing more leave than their annual entitlement From my broad analysis of the leave balances I feel there is not a significant pattern of explicit accumulated balances being availed consistently year on year, since employees on an average are seen to avail less leave

D Methodology

D 1.1 The Projected Unit Credit (PUC) actuarial method has been used to assess the Plan's liabilities, including those related to death-in-service and incapacity benefits.

D 1.2 Under the PUC method a "projected accrued benefit" is calculated at the beginning of the year and again at the end of the year for each benefit that will accrue for all active members of the Plan. The "projected accrued benefit" is based on the Plan's accrual formula and upon service as of the beginning or end of the year, but using a member's final compensation, projected to the age at which the employee is assumed to leave active service. The Plan liability is the actuarial present value of the "projected accrued benefits" as of the beginning of the year for active members.

D 1.3 The liability for an underfunded plan has been classified as a current liability, a non-current liability, or a combination of both, based on guidelines issued under the Schedule III to the companies Act, 2013.
The current portion (determined on a plan-by-plan basis) is the amount by which the actuarial present value of benefits included in the benefit obligation payable in the next 12 months, or operating cycle if longer, exceeds the fair value of plan assets. The assets for an overfunded plan shall be classified as a non-current asset in a classified statement of financial position.

E Principal Plan Provisions

A summary of the understanding of principal rules of the Plan

Leave Benefit Scheme

Salary Definition	Last drawn Basic Salary + DA (if any)
Annual leave entitlement	30 days
Maximum accumulation of leaves allowed	150 days for Officers and Assistants 240 days for the Staff and Workers
Retirement Age	60 Years for Officers and Assistants ; 58 years for the Staff and Workers
Leave encashment formula	(Monthly Salary*Leave Balance) / 30
Encashment on separation	Accumulated leave balance to the employee's credit
Form of Payment	Lump sum
Discretionary Benefits	No allowance

F Frequently Asked Questions

1 What is the meaning of "Expected Term of Defined Benefit Obligation"?

The expected term of the defined benefit obligation is the weighted Average Future Working Lifetime (AFWL) which depends upon the estimated time and amount of benefits payments for the given set of members.

Based on the membership data and key assumptions such as mortality, withdrawal rate and salary increases, a spread of expected future benefit payments is determined. This in turn enables the estimation of a single weighted average which reflects an expected timing of the entire obligation. This estimate also represents a rough 'duration' of the liabilities

2 How is discount rate determined?

As per the guidance provided by AS15 and IND AS19 accounting standards, the discount rate needs to be determined by using an appropriate yield from government bonds at the valuation date taking into account the currency and expected term of the defined benefit obligations.

For International standards such as US GAAP and IFRS, it is recommended that the corresponding yields on high quality corporate bonds should be considered. However, due to the absence of a deep market of corporate bonds in India, the yield from government bonds is considered (similar to the approach adopted for AS15 and IND AS19).

3 Why is the discount rate used at beginning of the year reflected under current year expense table?

The current year expense reflects the cost of the liabilities increasing due to unwinding and the cost of additional benefits accruing over a year. In determining these additional accrual costs over the period like service cost and interest cost, the assumptions at the beginning of the year need to be adopted.

4 Why is the accrued benefit different from Defined Benefit Obligation (DBO)?

Accrued benefit for a scheme is the total benefit all employees have accrued since their joining date till the valuation date It reflects the total benefit that the member will be entitled to if he / she were to claim these immediately.

Defined Benefit Obligation (DBO) is the expected present value of the projected accrued benefit of the members till retirement age or earlier exit. The calculation of the DBO, therefore, involves use of certain financial and demographic assumptions such as discount rate, salary increases, withdrawal rate, mortality etc.

6 How are the expected benefit payments determined?

The undiscounted benefit payouts which are expected to be paid to the employees in the coming years if they leave the organization due to any reason such as retirement, death, disability or withdrawal.

7 Why do Actuarial Gains and Losses occur?

From one plan year to the next, we expect the liability at the beginning of the year to increase due to an additional year of accrual which is termed as service cost and due to interest (unwinding) which is termed as interest cost. Also the liability is expected to decrease by the benefit payments made by the company during the year.

However, in reality, the assumptions made at the start of the year are not always borne out – for example we may have expected salaries to increase by 10% but they actually increased by 12% or 14%. This impact which is included within the renewed data can impact the liabilities and is called an experience gain or loss.

Further, assumptions made at the end of the year may no longer be the same as those made at the start of the year – for example government bond yields could have gone up or come down.

The difference between assumptions at start and end has an impact on liabilities and is called a gain or loss due to changes in assumptions.

8 What is the difference between financial and demographic assumptions?

Financial assumptions generally affect the amount of future expected benefit payments whereas demographic assumptions generally affect the timing and number of the benefit payments. The discount rate is also a financial assumption which we use to discount the expected benefit payments and is linked to yields on government bonds.

9 Under what circumstances can the current liability be zero for a funded scheme?

Current liability represents the discounted value of the expected payments for the coming year. For a funded scheme if the assets are greater than the expected payouts to be made for the coming year, the current liability is zero as the expected benefit payments will be made from the fund.

10 What is Actuarial Practice Standard 27?

It is the latest Actuarial practice standard (APS) issued by Institute of Actuaries of India effective 1 January 2018, which superceeds all previous APSs and Guidance notes issued in the area of employee benefits. Whenever a member performs actuarial work related to pensions or other employee benefits in the specific areas covered in this standard, this standard will apply and the Fellow Member certifying must ensure compliance with the requirements of this Standard.

G Glossary

Service Cost	Service cost comprises: (a) current service cost, which is the increase in the present value of the defined benefit obligation resulting from employee service in the current period; (b) past service cost, which is the change in the present value of the defined benefit obligation for employee service in prior periods, resulting from a plan amendment (the introduction or withdrawal of, or changes to, a defined benefit plan) or a curtailment (a significant reduction by the entity in the number of employees covered by a plan); and (c) any gain or loss on settlement.
Net interest on the net defined benefit liability (asset)	Net interest on the net defined benefit liability (asset) is the change during the period in the net defined benefit liability (asset) that arises from the passage of time.
Remeasurements of the net defined benefit liability (asset)	Remeasurements of the net defined benefit liability (asset) comprise: (a) actuarial gains and losses; (b) the return on plan assets, excluding amounts included in net interest on the net defined benefit liability (asset); and (c) any change in the effect of the asset ceiling, excluding amounts included in net interest on the net defined benefit liability (asset).
Actuarial gains and losses	Actuarial gains and losses are changes in the present value of the defined benefit obligation resulting from: (a) experience adjustments (the effects of differences between the previous actuarial assumptions and what has actually occurred); and (b) the effects of changes in actuarial assumptions
Return on plan assets	The return on plan assets is interest, dividends and other income derived from the plan assets, together with realised and unrealised gains or losses on the plan assets, less: (a) any costs of managing plan assets; and (b) any tax payable by the plan itself, other than tax included in the actuarial assumptions used to measure the present value of the defined benefit obligation.
Settlement	A settlement is a transaction that eliminates all further legal or constructive obligations for part or all of the benefits provided under a defined benefit plan, other than a payment of benefits to, or on behalf of, employees that is set out in the terms of the plan and included in the actuarial assumptions
Accrued Benefit Obligation	This is the present value of liability owed to employees under a scheme's benefit formula without any projected salary increases and discounted at a nominal rate of interest.
Vested Benefit Obligation	This is the present value of liability owed to employees under a scheme's benefit formula who are vested as of the valuation date.

Ritobrata Sarkar, Consulting Actuary
Fellow, Institute of Actuaries of India #5394

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India Power Corporation Limited

Superannuation Scheme

Reporting under Indian Accounting Standard (Ind AS) 19

Actuarial Valuation for Year ended 31 March 2018

Ritobrata Sarkar (Memb no - 5394)
Fellow, Institute of Actuaries of India

Date: 07 May 2018

India Power Corporation Limited
Superannuation Scheme
Reporting under Indian Accounting Standard (Ind AS) 19

1 Introduction

1.1 This report is provided subject to the terms set out herein and in the Engagement Letter dated 4 April 2018 and the accompanying General Terms and Conditions of Business.

1.2 I have been requested by India Power Corporation Limited (the "Company") to report on the financial position of its Superannuation Scheme (the "Plan") liabilities for the Year ending 31 March 2018 and to calculate the accounting expenses associated with the Scheme for the Year ending 31 March 2018 as per the norms of Indian Accounting Standard (Ind AS) 19 issued by The Ministry of Corporate Affairs of the Central Government of India in consultation with the National Advisory Committee on Accounting Standards.

1.3 The results set out in this report are based on my understanding of Ind AS 19 and its application to the Plan. They have been prepared for the specific requirements of Ind AS 19 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.

1.4 This report complies with Actuarial Practice Standard 27 (APS 27) as published by the Institute of Actuaries of India (IAI), which came into effect from 1 January 2018.

1.5 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.

2 Summary of Results

2.1 The table below shows a summary of the key results for the Year ended 31 March 2018.

Assets / Liabilities	31-Mar-17	31-Mar-18
	INR	INR
1. Defined Benefit Obligation (DBO)*	2,091,153.00	2,562,000.00
2. Fair Value of Plan Assets (FVA)	787,678.00	836,678.00
3. Funded Status (Surplus/(Deficit))	(1,303,475.00)	(1,725,322.00)

Assets / Liabilities	31-Mar-17	31-Mar-18
	INR	INR
1. Active Employees	2,091,153.00	2,562,000.00
2. Pensioners	0.00	0.00
3. Total	**2,091,153.00**	**2,562,000.00**

The DBO as at 31 March 2017 is as certified by the previous actuary.

Defined Benefit Cost	Year ended 31 March 2018
	INR
1. Service Cost	0.00
2. Defined Benefit Cost recognised in P&L	82,000.00
3. Remeasurements recognised in Other Comprehensive Income (OCI) Loss/(Gains)	339,847.00

Key Assumptions used	31 March 2018
1. Discount Rate	7.60%
2. Rate of Pension increases	0.00%

2.2 Service cost represents the Current Service cost which is the cost associated with the Current period benefit accruals and the Past Service cost which is the change in the DBO resulting from changes in the benefit plan provisions for employee Service in prior periods. Total Employer expense is the expense under Ind AS 19; inclusive of Service Cost and Net Interest.

2.3 Table 1 shows the Disclosure of Defined Benefit Cost for the Year ending 31 March 2018

2.4 Table 2 shows the Net Balance Sheet position as at 31 March 2018

2.5 Table 3 shows the Changes in Benefit Obligations and Assets over the Year ending 31 March 2018

2.6 Table 4 shows the Additional Disclosure Information

2.7 Table 5 shows the Sensitivity Analysis

3 Information Sources

3.1 The actuarial valuation as at 31 March 2018 has been carried out on the basis of the membership data provided by the company as at 31 March 2018

3.2 The benefit payouts during the period 1 April 2017 to 31 March 2018 reflect the benefits that are expected to be paid to the retirees only.

3.3 In preparing this Report, there has been a reliance on the completeness and accuracy of all the data and information, including Plan provisions, membership data and asset information provided orally and in writing by or on behalf of the Company by it's asset managers, plan administrators and other third parties. No detailed validation checks have been performed on the information provided. However, broad consistency checks have been carried out.

3.4 According to Ind AS 19 the discount rate should be based upon the market yields available on government bonds at the accounting date, corresponding to a estimated term that matches that of the obligations.The other assumptions should be chosen to reflect a best estimate of the future long-term experience.

The Discount Rate as at 31 March 2018 is based on the government bond yields as at 28 March 2018 .

3.5 The Superannuation Scheme is treated as a post-employment benefit under Ind AS 19 and the actuarial gains/losses are recognised immediately through the Other Comprehensive Income via retained earnings.

3.6 The Fair Value of the Asset as at 1 April 2017 has been taken to be as provided by the Company.

4 Conclusion

4.1 The assumptions and methodology used in compiling this report are consistent with my understanding of Ind AS 19.

4.2 The summary of the membership data used (including details of any modifications applied) in the calculations is set out in Appendix B.

4.3 The key assumptions used in the calculations are set out in Appendix C.

4.4 The results are particularly sensitive to some assumptions, such as the discount rate, level of salary increase and level of employee turnover. A decrease in the discount rate assumed or an increase in salary inflation will lead to an increase in reported cost.

4.5 The methodology used in the calculations is set out in Appendix D.

4.6 The benefits valued (including any discretionary benefits) in this Report are summarised in Appendix E.

4.7 Full actuarial valuations as at the start and end of the accounting period have been performed, based on member data and plan information provided at these dates.

4.8 The full results of our calculations are set out in Tables 1 to 5.

4.9 I would be pleased to discuss this Report with you.

Yours faithfully

Ritobrata Sarkar (Memb no - 5394)
Fellow, Institute of Actuaries of India

TABLE 1

India Power Corporation Limited
Superannuation Scheme
Actuarial Calculations under Indian Accounting Standard (Ind AS) 19
Disclosure of Defined Benefit Cost for the Year ending 31 March 2018
Local currency - INR

A Profit & Loss (P&L)	One Year Period Ending 31 March 2017	One Year Period Ending 31 March 2018
1 Current service cost	0.00	0.00
2 Past service cost - plan amendements	0.00	0.00
3 Curtailment cost / (credit)	0.00	0.00
4 Settlement cost / (credit)	0.00	0.00
5 Service cost	0.00	0.00
6 Net interest on net defined benefit liability / (asset)	(33,178.00)	82,000.00
7 Immediate recognition of (gains)/losses – other long term employee ben	0.00	0.00
8 Cost recognised in P&L	**(33,178.00)**	**82,000.00**

B Other Comprehensive Income (OCI)	31 March 2017	31 March 2018
1 Actuarial (gain)/loss due to DBO experience	131,152.00	370,847.00
2 Actuarial (gain)/loss due to DBO assumption changes	296,398.00	(31,000.00)
3 Actuarial (gain)/loss arising during period	427,550.00	339,847.00
4 Return on plan assets (greater)/less than discount rate	1,366,103.00	0.00
5 Actuarial (gains)/ losses recognized in OCI	1,793,653.00	339,847.00
6 Adjustment for limit on net asset	0.00	0.00

C Defined Benefit Cost	31 March 2017	31 March 2018
1 Service cost	0.00	0.00
2 Net interest on net defined benefit liability / (asset)	(33,178.00)	82,000.00
3 Actuarial (gains)/ losses recognized in OCI	1,793,653.00	339,847.00
4 Immediate recognition of (gains)/losses – other long term employee ben	0.00	0.00
5 Defined Benefit Cost	**1,760,475.00**	**421,847.00**

D Assumptions as at	31 March 2017	31 March 2018
1 Discount Rate	7.26%	6.26%
2 Rate of Pension Increase	0.00%	0.00%

TABLE 2

India Power Corporation Limited
Superannuation Scheme
Actuarial Calculations under Indian Accounting Standard (Ind AS) 19
Net Balance Sheet position as at 31 March 2018
Local currency - INR

A	Development of Net Balance Sheet Position	One Year Period Ending 31 March 2017	One Year Period Ending 31 March 2018
1	Defined benefit obligation (DBO)	(2,091,153.00)	(2,562,000.00)
2	Fair value of plan assets (FVA)	787,678.00	836,678.00
3	Funded status [surplus/(deficit)]	(1,303,475.00)	(1,725,322.00)
4	Effect of Asset ceiling	0.00	0.00
5	**Net defined benefit asset/ (liability)**	**(1,303,475.00)**	**(1,725,322.00)**

B	Reconciliation of Net Balance Sheet Position	31 March 2017	31 March 2018
1	Net defined benefit asset/ (liablity) at end of prior period	457,000.00	(1,303,475.00)
2	Service cost	0.00	0.00
3	Net interest on net defined benefit liabilty/ (asset)	33,178.00	(82,000.00)
4	Amount recognised in OCI	(1,793,653.00)	(339,847.00)
5	Employer contributions	0.00	0.00
6	Benefit paid directly by the Company	0.00	0.00
7	Acquisition Adjustment	0.00	0.00
8	Divestitures	0.00	0.00
9	Cost of termination benefits	0.00	0.00
10	**Net defined benefit asset/ (liablity) at end of current period**	**(1,303,475.00)**	**(1,725,322.00)**

C	Assumptions as at	31 March 2017	31 March 2018
1	Discount Rate	6.26%	7.60%
2	Rate of Pension Increase	0.00%	0.00%

TABLE 3

India Power Corporation Limited
Superannuation Scheme
Actuarial Calculations under Indian Accounting Standard (Ind AS) 19
Changes in Benefit Obligations and Assets over the Year ending 31 March 2018
Local currency - INR

A	Change in Defined Benefit Obligation (DBO)	One Year Period Ending 31 March 2017	One Year Period Ending 31 March 2018
1	**DBO at end of prior period**	**1,551,000.00**	**2,091,153.00**
2	Current service cost	0.00	0.00
3	Interest cost on the DBO	112,603.00	131,000.00
4	Curtailment (credit)/ cost	0.00	0.00
5	Settlement (credit)/ cost	0.00	0.00
6	Past service cost - plan amendements	0.00	0.00
7	Acquisitions (credit)/ cost	0.00	0.00
8	Actuarial (gain)/loss - experience	131,152.00	370,847.00
9	Actuarial (gain)/loss - demographic assumptions	0.00	0.00
10	Actuarial (gain)/loss - financial assumptions	296,398.00	(31,000.00)
11	Benefits paid directly by the Company	0.00	0.00
12	Benefits paid from plan assets	0.00	0.00
13	**DBO at end of current period**	**2,091,153.00**	**2,562,000.00**

B	Change in Fair Value of Assets	31 March 2017	31 March 2018
1	**Fair value of assets at end of prior period**	**2,008,000.00**	**787,678.00**
2	Acquisition Adjustment	0.00	0.00
3	Interest income on plan assets	145,781.00	49,000.00
4	Employer contributions	0.00	0.00
5	Return on plan assets greater/(lesser) than discount rate	(1,366,103.00)	0.00
6	Benefits paid	0.00	0.00
7	**Fair Value of assets at the end of current period**	**787,678.00**	**836,678.00**

TABLE 4

India Power Corporation Limited
Superannuation Scheme
Actuarial Calculations under Indian Accounting Standard (Ind AS) 19
Additional Disclosure Information
Local currency - INR

A	Expected benefit payments for the year ending	
1	March 31, 2019	2,471,778.00
2	March 31, 2020	0.00
3	March 31, 2021	0.00
4	March 31, 2022	0.00
5	March 31, 2023	0.00
6	March 31, 2024 to March 31, 2028	0.00

B	Expected employer contributions for the period ending 31 March 2019	1,725,322
C	Weighted average duration of defined benefit obligation	1 Year
D	Accrued Benefit Obligation at 31 March 2018	2,562,000

E Plan Asset Information as at 31 March 2018	Percentage
Government of India Securities (Central and State)	0.00%
High quality corporate bonds (including Public Sector Bonds)	0.00%
Equity shares of listed companies	0.00%
Property	0.00%
Cash (including Special Deposits)	0.00%
Schemes of insurance - conventional products	100.00%
Schemes of insurance - ULIP products	0.00%
Other	0.00%
Total	**100.00%**

Note: This report provides basic information in relation to plan assets. Additional input may be required by the Company in relation to the plan asset disclosures specified in paragraphs 142, 143 of Ind AS 19

F	Current and Non Current Liability Breakup as at	INR 31 March 2017	INR 31 March 2018
1	Current Liability	(15,172.00)	(1,546,000.00)
2	Non Current Asset/ (Liability)	(2,075,981.00)	(179,322.00)
3	**Net Asset/(Liability) as at 31 March 2018**	**(2,091,153.00)**	**(1,725,322.00)**

The liability for an underfunded plan has been classified as a current liability, a non-current liability, or a combination of both, based on guidelines issued under Schedule III to the Companies Act,2013.
The current portion (determined on a plan-by-plan basis) is the amount by which the actuarial present value of benefits included in the benefit obligation payable in the next 12 months, or operating cycle if longer, exceeds the fair value of plan assets. The assets for an overfunded plan shall be classified as a non-current asset in a classified statement of financial position.

TABLE 5

India Power Corporation Limited
Superannuation Scheme
Actuarial Calculations under Indian Accounting Standard (Ind AS) 19
Sensitivity Analysis
Local currency - INR

DBO on base assumptions as at 31 March 2018 **These assumptions are summarised in Appendix C of the report.**	**2,562,000.00**

A Discount Rate	
Discount Rate as at 31 March 2018	**7.60%**
1 Effect on DBO due to 1% increase in Discount Rate	(24,000.00)
Percentage Impact	*-0.9%*
2 Effect on DBO due to 1% decrease in Discount Rate	23,000.00
Percentage Impact	*0.9%*
B Salary escalation rate	
Salary Escalation Rate as at 31 March 2018	**5.00%**
1 Effect on DBO due to 1% increase in Salary Escalation Ra	25,000.00
Percentage Impact	*1.0%*
2 Effect on DBO due to 1% decrease in Salary Escalation Ra	(25,000.00)
Percentage Impact	*-1.0%*
C Withdrawal Rate	
Withdrawal Rate as at 31 March 2018	**0.00%**
1 Effect on DBO due to 1% increase in Withdrawal Rate	0.00
Percentage Impact	*0.0%*
2 Effect on DBO due to 1% decrease in Withdrawal Rate	0.00
Percentage Impact	*0.0%*
D Mortality Rate	
Mortality Rate as at 31 March 2018	**Indian Assured Lives Mortality (2006-08) (modified) Ult**
1 Effect on DBO due to 10% increase in Mortality Rate	1,000.00
Percentage Impact	*0.0%*
2 Effect on DBO due to 10% decrease in Mortality Rate	(1,000.00)
Percentage Impact	*0.0%*

Method used for sensitivity analysis: The sensitivity results above determine their individual impact on the Plan's end of year Defined Benefit Obligation. In reality, the Plan is subject to multiple external experience items which may move the Defined Benefit Obligation in similar or opposite directions, while the Plan's sensitivity to such changes can vary over time.

A Understanding Actuarial Gains and Losses

A 1.1 Understanding Actuarial Gains and Losses

Possible reasons for Actuarial Gains or Losses on Plan Liabilities	
1	If the actual attrition, retirement or mortality experience turns out to be higher or lower than expected based on the assumptions made at the start of the accounting period, it would lead to an Actuarial Gain or Loss on Plan Liabilities.
2	If the salary increases are higher or lower than expected based on the assumption made at the start of the accounting period , it would lead to an Actuarial Gain or Loss on Plan Liabilities.
3	If the actuarial assumptions of salary increase, attrition rate and discount rate change from one valuation year to another, it may lead to Actuarial Gain or Loss on Plan Liabilities.
4	Any significant changes in the demographic profile may also lead to Actuarial Gain or Loss on Plan Liabilities such as a large growth of the employee count from new joinees.
5	If the actual leave availment from the current year entitlement is different than the Availment Pattern assumed at the start of the accounting period, it may leave to Actuarial Gain or Loss on Plan Liabilities.

Possible reasons for experience Gains or Losses on Plan Assets:	
1	Return on plan assets greater/(lesser) than discount rate. For example, if the discount rate was 8% and the fund actually earned 7%, it would result in an actuarial loss on assets.

The reasons explained above aim at helping to understand the possible reasons for the occurrence of Actuarial Gains or Losses in an intervaluation period. Specific reasons for Actuarial Gains or Losses as entailed in Table 3 would require a more detailed investigation.

B Summary of Membership Data

B 1.1 Below is a summary of the active members of the plan:

	31-Mar-17	31-Mar-18
Number of employees-Actives	1	1
Total monthly salary (INR) - Active Members	28,934	30,666
Average attained age (years)	Not Available	59.21
Average attained service (years)	Not Available	35.00

Major Data Observations: None

C Assumptions

C1.1 The valuation summarised in this report involves actuarial calculations that require assumptions about future events. India Power Corporation Limited is responsible for the selection of the assumptions.

C 1.2 I have not carried out a formal experience analysis within the last 3 years in the process of advising on material actuarial assumptions. The importance, implication and broad guidelines for the actuarial assumptions have been discussed with the Company. The Company feels that the assumptions used in this report best represent their long term perspective. I believe that the assumptions used in this report are reasonable for the purpose for which they have been used. However I recommend an experience analysis be carried out once every three years for the purpose of validating the assumptions.

C1.3 The actuarial assumptions (demographic & financial) employed for the calculations as at 31 March 2017 and 31 March 2018 are as follows.

Financial Assumptions	31-Mar-17	31-Mar-18
Discount Rate	6.26%	7.60%
Pension Inflation	0.00%	0.00%
Mortality Rate (post retirement)	Not Applicable	Not Applicable
Mortality Rate (In Service)	Indian Assured Lives Mortality (2006-08) (modified) Ult	Indian Assured Lives Mortality (2006-08) (modified) Ult
Marital Status	100% Married	100% Married
Spouse Age Difference	Spouse is 5 years younger than Member	Spouse is 5 years younger than Member
Annuity Type	Single life Annuity	Single life Annuity
Commutation	100.00%	100.00%

**** We have not considered any Mortality improvement for calculating Pension Liability as this Pension is being bought from an Insurance Company.***

Specimen Mortality rates

Age	Rates	Age	Rates
20	0.000888	*45*	0.002874
25	0.000984	*50*	0.004946
30	0.001056	*55*	0.007888
35	0.001282	*60*	0.011534
40	0.001803	*65*	0.017009

C1.4 ***Notes:***

1 The effects of Mortality and Withdrawal have been factored by constructing a Multiple Decrement Table taking into account the above Mortality table.

2 Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as:
a. Plan experience differing from that anticipated by the economic or demographic assumptions
b. Changes in economic or demographic assumptions
c. Changes in plan provisions or applicable law

D Methodology

D 1.1 The Projected Unit Credit (PUC) actuarial method has been used to assess the Plan's liabilities, including those related to death-in-service and incapacity benefits.

D 1.2 Under the PUC method a "projected accrued benefit" is calculated at the beginning of the year and again at the end of the year for each benefit that will accrue for all active members of the Plan. The "projected accrued benefit" is based on the Plan's accrual formula and upon service as of the beginning or end of the year, but using a member's final compensation, projected to the age at which the employee is assumed to leave active service. The Plan liability is the actuarial present value of the "projected accrued benefits" as of the beginning of the year for active members.

D 1.3 The liability for an underfunded plan has been classified as a current liability, a non-current liability, or a combination of both, based on guidelines issued under the Schedule III to the companies Act, 2013.
The current portion (determined on a plan-by-plan basis) is the amount by which the actuarial present value of benefits included in the benefit obligation payable in the next 12 months, or operating cycle if longer, exceeds the fair value of plan assets. The assets for an overfunded plan shall be classified as a non-current asset in a classified statement of financial position.

D 1.4 The assets have been reported as per the Fair Value of the Plan Assets as on the Balance Sheet Date.

E Principal Plan Provisions

A summary of the understanding of principal rules of the Plan

Superannuation Scheme

Normal Retirement Age	60 years
Salary Applicable	Average of Last Drawn Salary over 36 months
Pension Fraction	Grade F & Whole Time Director - 1/50th Others - 1/60th
Maximum Period of Service	30 years
Benefit Payable on Retirement or Resignation	Grade F & Whole Time Director - 15 years Guaranteed and for Life Others - 10 years Guaranteed and for Life
Benefit Payable on Death in Service	Pension guaranteed for 10 years to the dependent will be 50% of the pension that the member would have been eligible for at the time of death provided the member has completed 10 years of service

F Frequently Asked Questions

1 What is the meaning of "Expected Term of Defined Benefit Obligation"?

The expected term of the defined benefit obligation is the weighted Average Future Working Lifetime (AFWL) which depends upon the estimated time and amount of benefits payments for the given set of members.
Based on the membership data and key assumptions such as mortality, withdrawal rate and salary increases, a spread of expected future benefit payments is determined. This in turn enables the estimation of a single weighted average which reflects an expected timing of the entire obligation. This estimate also represents a rough 'duration' of the liabilities

2 How is discount rate determined?

As per the guidance provided by AS15 and IND AS19 accounting standards, the discount rate needs to be determined by using an appropriate yield from government bonds at the valuation date taking into account the currency and expected term of the defined benefit obligations.
For International standards such as US GAAP and IFRS, it is recommended that the corresponding yields on high quality corporate bonds should be considered. However, due to the absence of a deep market of corporate bonds in India, the yield from government bonds is considered (similar to the approach adopted for AS15 and IND AS19).

3 Why is the discount rate used at beginning of the year reflected under current year expense table?

The current year expense reflects the cost of the liabilities increasing due to unwinding and the cost of additional benefits accruing over a year. In determining these additional accrual costs over the period like service cost and interest cost, the assumptions at the beginning of the year need to be adopted.

4 Why is the accrued benefit different from Defined Benefit Obligation (DBO)?

Accrued benefit for a scheme is the total benefit all employees have accrued since their joining date till the valuation date. It reflects the total benefit that the member will be entitled to if he / she were to claim these immediately.
Defined Benefit Obligation (DBO) is the expected present value of the projected accrued benefit of the members till retirement age or earlier exit. The calculation of the DBO, therefore, involves use of certain financial and demographic assumptions such as discount rate, salary increases, withdrawal rate, mortality etc.

6 How are the expected benefit payments determined?

The undiscounted benefit payouts which are expected to be paid to the employees in the coming years if they leave the organization due to any reason such as retirement, death, disability or withdrawal.

7 Why do Actuarial Gains and Losses occur?

From one plan year to the next, we expect the liability at the beginning of the year to increase due to an additional year of accrual which is termed as service cost and due to interest (unwinding) which is termed as interest cost. Also the liability is expected to decrease by the benefit payments made by the company during the year.
However, in reality, the assumptions made at the start of the year are not always borne out – for example we may have expected salaries to increase by 10% but they actually increased by 12% or 14%. This impact which is included within the renewed data can impact the liabilities and is called an experience gain or loss.
Further, assumptions made at the end of the year may no longer be the same as those made at the start of the year – for example government bond yields could have gone up or come down.
The difference between assumptions at start and end has an impact on liabilities and is called a gain or loss due to changes in assumptions.

8 What is the difference between financial and demographic assumptions?

Financial assumptions generally affect the amount of future expected benefit payments whereas demographic assumptions generally affect the timing and number of the benefit payments. The discount rate is also a financial assumption which we use to discount the expected benefit payments and is linked to yields on government bonds.

9 Under what circumstances can the current liability be zero for a funded scheme?
Current liability represents the discounted value of the expected payments for the coming year. For a funded scheme if the assets are greater than the expected payouts to be made for the coming year, the current liability is zero as the expected benefit payments will be made from the fund.

10 What is Actuarial Practice Standard 27?

It is the latest Actuarial practice standard (APS) issued by Institute of Actuaries of India effective 1 January 2018, which supersedes all previous APSs and Guidance notes issued in the area of employee benefits. Whenever a member performs actuarial work related to pensions or other employee benefits in the specific areas covered in this standard, this standard will apply and the Fellow Member certifying must ensure compliance with the requirements of this Standard.

G Glossary

Service Cost	Service cost comprises: (a) current service cost, which is the increase in the present value of the defined benefit obligation resulting from employee service in the current period; (b) past service cost, which is the change in the present value of the defined benefit obligation for employee service in prior periods, resulting from a plan amendment (the introduction or withdrawal of, or changes to, a defined benefit plan) or a curtailment (a significant reduction by the entity in the number of employees covered by a plan); and (c) any gain or loss on settlement.
Net interest on the net defined benefit liability (asset)	Net interest on the net defined benefit liability (asset) is the change during the period in the net defined benefit liability (asset) that arises from the passage of time.
Remeasurements of the net defined benefit liability (asset)	Remeasurements of the net defined benefit liability (asset) comprise: (a) actuarial gains and losses; (b) the return on plan assets, excluding amounts included in net interest on the net defined benefit liability (asset); and (c) any change in the effect of the asset ceiling, excluding amounts included in net interest on the net defined benefit liability (asset).
Actuarial gains and losses	Actuarial gains and losses are changes in the present value of the defined benefit obligation resulting from: (a) experience adjustments (the effects of differences between the previous actuarial assumptions and what has actually occurred); and (b) the effects of changes in actuarial assumptions.
Return on plan assets	The return on plan assets is interest, dividends and other income derived from the plan assets, together with realised and unrealised gains or losses on the plan assets, less: (a) any costs of managing plan assets; and (b) any tax payable by the plan itself, other than tax included in the actuarial assumptions used to measure the present value of the defined benefit obligation.
Settlement	A settlement is a transaction that eliminates all further legal or constructive obligations for part or all of the benefits provided under a defined benefit plan, other than a payment of benefits to, or on behalf of, employees that is set out in the terms of the plan and included in the actuarial assumptions.
Accrued Benefit Obligation	This is the present value of liability owed to employees under a scheme's benefit formula without any projected salary increases and discounted at a nominal rate of interest.
Vested Benefit Obligation	This is the present value of liability owed to employees under a scheme's benefit formula who are vested as of the valuation date.