

**Bi-State Development Agency  
of the Missouri-Illinois  
Metropolitan District  
and Local No. 2 and Local No. 309  
of the International Brotherhood of  
Electrical Workers Employees'  
Pension Plan and Agreement**

**April 1, 2017 Actuarial Valuation**

**Prepared November 2017**

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**Bi-State Development  
IBEW Union Employees' Pension Plan**

**April 1, 2017 Actuarial Valuation**

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**Bi-State Development  
IBEW Union Employees' Pension Plan**

**April 1, 2017 Actuarial Valuation**

**Introduction and Purpose**

In this report, we present the results of the April 1, 2017 actuarial valuation for the Bi-State Development IBEW Union Employees' Pension Plan. The report has been prepared at the request of the Bi-State Development's Board, for the sole use of the Board, Bi-State Development and the Pension Committee.

**PURPOSES OF THE VALUATION**

The actuarial valuation of the Plan is intended to accomplish several purposes:

- The determination of the recommended level of employer contributions
- Assessment of the relative funded position of the plan on an ongoing basis, i.e., through a comparison of plan assets and projected plan liabilities

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**Bi-State Development  
IBEW Union Employees' Pension Plan**

**April 1, 2017 Actuarial Valuation**

**Actuarial Certification**

As requested, we have performed an actuarial valuation of the Bi-State Development Agency of the Missouri-Illinois Metropolitan District and Local No. 2 and Local No. 309 of the International Brotherhood of Electrical Workers Employees' Pension Plan (Plan) as of April 1, 2017 for determining contributions for the Plan Year ending March 31, 2018. Our findings are set forth in this actuary's report. This report reflects the benefit provisions in effect on April 1, 2017.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by Bi-State Development, Milliman Seattle, Mayer Hoffman McCann and U.S. Bank. This information includes, but is not limited to, statutory provisions, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

Actuarial assumptions, including discount rates, mortality tables, and others identified in this report, and actuarial cost methods are prescribed jointly by Bi-State Development and the Pension Committee. These parties are responsible for selecting the plan's funding policy, actuarial valuation methods, asset valuation methods, and assumptions. The policies methods and assumptions used in this valuation are those that have been so prescribed and are described in the Actuarial Basis of this report. Bi-State Development and the Pension Committee are solely responsible for communicating to Milliman any changes required thereto.

This valuation report is only an estimate of the Plan's financial condition as of a single date. It can neither predict the Plan's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of Plan benefits, only the timing of Plan contributions. While the valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct. Determining results using alternative assumptions is outside the scope of our engagement.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or

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contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law. Due to the limited scope of our assignment, we did not perform an analysis of the potential range of future measurements.

Actuarial computations presented in this report are for purposes of determining the recommended funding amounts for the Plan. The calculations in the enclosed report have been made on a basis consistent with our understanding of the Plan's funding requirements and goals and the plan provisions described on pages 22-24 of this report. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman's work is prepared solely for the use and benefit of the Plan. To the extent that Milliman's work is not subject to disclosure under applicable public records laws, Milliman's work may not be provided to third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of its work product. Milliman's consent to release its work product to any third party may be conditioned on the third party signing a Release, subject to the following exception(s):

- (a) The Plan may provide a copy of Milliman's work, in its entirety, to the Plan's professional service advisors who are subject to a duty of confidentiality and who agree to not use Milliman's work for any purpose other than to benefit the Plan.
- (b) The Plan may provide a copy of Milliman's work, in its entirety, to other governmental entities, as required by law.

No third party recipient of Milliman's work product should rely upon Milliman's work product. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are pension actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the plan sponsor. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

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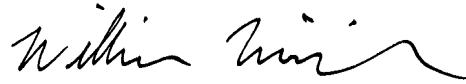
We respectfully submit the following report, and we look forward to discussing it with you.

Sincerely,



Michael J. Zwiener, FSA  
Consulting Actuary  
Joint Board Enrollment #17-03686

MJZ/WDW/crd



William D. Winningham, EA  
Actuary  
Joint Board Enrollment #17-06367

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**Bi-State Development  
IBEW Union Employees' Pension Plan**

**April 1, 2017 Actuarial Valuation**

**Discussion of Valuation Results**

**1. Contribution Recommendation**

The results of this valuation are used to determine recommended contribution rates to the Plan. A comparison of recommended contribution rates for the current and immediately preceding valuations is shown below:

	<u>Actuarial Valuation as of</u>	
	<u>April 1, 2016</u>	<u>April 1, 2017</u>
Weekly Recommended Contribution Rate	\$83.59	\$84.43
Additional Weekly Contribution Required to Achieve 100% Funding	\$47.05	\$323.62

There was a small increase in the recommended contribution rate as compared to the preceding year. The primary reasons for the increase were: 1) actuarial asset return lower than the assumed 7% for the year ended March 31, 2017 and 2) the decrease in the active headcount from 56 to 49.

The collective bargaining agreement effective March 1, 2013 called for an additional contribution to fully amortize the unfunded actuarial accrued liability over a five year period. The additional weekly contribution was determined in the April 1, 2013 actuarial valuation to be \$47.05. It was initially determined that this weekly amount will not be adjusted in future valuations. The additional amount will cease after a total of 260 weekly contributions have been made.

In June 2017, the Pension Committee approved an additional weekly contribution of \$276.57, the estimated amount to achieve 100% funding by February 28, 2018, assuming all actuarial assumptions, including investment return, are met. This contribution increase was effective June 26, 2017.

The regular weekly contribution is split 70/30 between employer and employees while the special contribution assessments are split 80/20 between employer and employees.

**2. Plan Assets**

The market value of plan assets increased from \$3,831,885 at April 1, 2016 to \$4,468,564 at April 1, 2017. A balance sheet and statement of income and disbursements are

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**Bi-State Development  
IBEW Union Employees' Pension Plan**

**April 1, 2017 Actuarial Valuation**

**Discussion of Valuation Results (continued)**

presented on pages 9 and 10, respectively. The net market rate of return was 11.1% versus -1.4% for the prior year.

The actuarial value of assets increased from \$4,053,469 at April 1, 2016 to \$4,524,789 at April 1, 2017. The development of the April 1, 2017 actuarial value of assets is presented on page 12. The net actuarial rate of return for the period was 6.5% versus the assumed rate of 7%.

**3. Actuarial Assumptions, Methods and Plan Provisions**

All actuarial assumptions, methods and plan provisions remained the same as the prior year. Descriptions of these can be found on pages 18-24.

The funding method is the Entry Age Normal method where Normal Costs are computed as a level dollar amount. The Unfunded Actuarial Accrued Liability is amortized as a level dollar amount. The amortization period was reset to 30 years effective April 1, 2005.

**4. Plan Population**

The number of active participants included in the valuation decreased from 56 to 49. The number of retirees and beneficiaries increased from 10 to 13. The number of terminated vested participants increased from 5 to 7. The number of terminated nonvested participants due a refund of employee contributions increased from 1 to 3.

**5. Funded Status**

There are various bases for assessing the funded status of the Plan on an ongoing basis (see page 13 for detailed calculations). One basis is to divide the actuarial value of assets by the Accrued Liability. Page 14 shows this ratio to be 89.7% for the current year. An upward trend in this ratio over the years is considered a favorable indicator of the Plan's funding progress.

Another measure displayed on page 14 is the Unfunded Accrued Liability as a percentage of covered payroll. A downward trend in this ratio over time is considered favorable.

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**Bi-State Development  
IBEW Union Employees' Pension Plan**

**April 1, 2017 Actuarial Valuation**

**Discussion of Valuation Results (continued)**

**6. Reconciliation of Unfunded Actuarial Accrued Liability**

The Plan experienced an overall net decrease in unfunded actuarial accrued liability for the Plan Year ending March 31, 2017 of approximately \$102,000. The reconciliation of the unfunded actuarial accrued liability from April 1, 2016 to April 1, 2017 is summarized below.

Unfunded Actuarial Accrued Liability as of April 1, 2016	\$620,000
Normal Cost including Expense Load	175,000
Contributions	(399,000)
Interest	42,000
Expected Unfunded Actuarial Accrued Liability as of April 1, 2017	438,000
Increase due to Loss on Actuarial Assets	18,000
Decrease due to Gain on Expenses	(4,000)
Increase due to Loss on Liability (Including Data Corrections and Mortality Improvements)	66,000
Unfunded Actuarial Accrued Liability as of April 1, 2017	518,000

**7. GASB Statement Nos. 67 and 68**

Results under GASB Statement Nos. 67 and 68 are provided in a separate report.

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**Bi-State Development  
IBEW Union Employees' Pension Plan**

**April 1, 2017 Actuarial Valuation**

**Summary of Valuation Results**

	Valuation Date <u>April 1, 2016</u>	Valuation Date <u>April 1, 2017</u>
Number of Participants:		
Active	56	49 *
Terminated Nonvested Due Refund	1	3
Terminated Vested	5	7
Receiving Payments	<u>10</u>	<u>13</u>
Total	72	72
Market Value of Assets	3,831,885	4,468,564
Actuarial Value of Assets	4,053,469	4,524,789
Present Value of Future Benefits	5,626,345	5,834,947 **
Entry Age Normal Accrued Liability	4,673,515	5,043,067 **
Unfunded Entry Age Normal Accrued Liability	620,046	518,278
Recommended Contribution	243,409	215,129
Required Weekly Contribution Rate	83.59	84.43
Additional Weekly Contribution Required to Achieve 100% Funded Ratio	47.05	323.62

\* Includes 5 Participants who transferred from the ATU Local 788 Plan, with liability of \$47,514 that will be paid from the ATU Local 788 Plan.

\*\* Includes 7 Participants who transferred to the Salaried Plan with total liability of \$205,136 that is included in this valuation for prior IBEW service.

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**Bi-State Development  
IBEW Union Employees' Pension Plan**

**April 1, 2017 Actuarial Valuation**

**Statement of Assets as of April 1, 2017**

<u>Assets</u>	<u>Market Value</u>
1. Cash and Cash Equivalents	29,048
2. Investments	4,437,904
3. Employer Contribution Receivable	3,434
4. Employee Contribution Receivable	1,232
Total Assets	4,471,618
<u>Liabilities</u>	
1. Accrued Expenses	3,054
Total Liabilities	3,054
Net Assets	<u>4,468,564</u>

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**Bi-State Development  
IBEW Union Employees' Pension Plan**

**April 1, 2017 Actuarial Valuation**

**Statement of Income and Disbursements**

1. Market Value of Assets as of April 1, 2016	3,831,885
2. Income	
a. Employer Contributions	303,166
b. Employee Contributions	96,314
c. Net Appreciation/(Depreciation) in Fair Value of Investments	354,137
d. Interest and Dividends	<u>88,251</u>
e. Total Income	841,868
3. Disbursements	
a. Benefit Payments	177,293
b. Investment Related Expenses	5,027
c. Administrative Expenses	<u>22,869</u>
d. Total Disbursements	205,189
4. Net Increase/(Decrease): (2e) - (3d)	636,679
5. Market Value of Assets as of April 1, 2017: (1) + (4)	4,468,564
6. Net Rate of Return	11.1%

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**Bi-State Development  
IBEW Union Employees' Pension Plan**

**April 1, 2017 Actuarial Valuation**

**Historical Returns on Market Value of Assets**

Plan Year <u>Ended</u>	Annual <u>Return</u>	Geometric Average <u>Return</u>
03/31/2009	-23.6%	-23.6%
03/31/2010	34.4%	1.3%
03/31/2011	12.4%	4.9%
03/31/2012	4.0%	4.7%
03/31/2013	10.3%	5.8%
03/31/2014	10.7%	6.6%
03/31/2015	6.0%	6.5%
03/31/2016	-1.4%	5.5%
03/31/2017	11.1%	6.1%

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**Bi-State Development  
IBEW Union Employees' Pension Plan**

**April 1, 2017 Actuarial Valuation**

**Development of Actuarial Value of Assets**

	Plan Year Ended <u>03/31/2014</u>	Plan Year Ended <u>03/31/2015</u>	Plan Year Ended <u>03/31/2016</u>	Plan Year Ended <u>03/31/2017</u>
1. Market Value at Beginning of Year	2,512,575	3,032,912	3,639,742	3,831,885
2. Contributions	309,510	513,170	421,821	399,480
3. Benefit Payments and Administrative Expenses	(91,938)	(108,193)	(176,255)	(200,162)
4. Assumed Rate of Return	7.25%	7.25%	7.25%	7.00%
5. Expected Return: (1) x (4) + [(2) + (3)] x {[1 + (4)] <sup>0.5</sup> - 1}	189,911	234,310	272,627	275,090
6. Expected Market Value at End of Year: (1) + (2) + (3) + (5)	2,920,058	3,672,199	4,157,935	4,306,293
7. Actual Market Value at End of Year	3,032,912	3,639,742	3,831,885	4,468,564
8. (Gain) / Loss on Market Value: (6) - (7)	(112,854)	32,457	326,050	(162,271)
	Plan Year Ended <u>03/31/2017</u>	(Gain) / Loss <u>(162,271)</u>	Factor <u>0.8</u>	Amount Deferred <u>(129,817)</u>
	03/31/2016	326,050	0.6	195,630
	03/31/2015	32,457	0.4	12,983
	03/31/2014	(112,854)	0.2	(22,571)
9. Total				56,225
10. Actuarial Value of Assets: (7) + (9)				4,524,789
11. Net Rate of Return				6.5%
12. Actuarial Value as a Percentage of Market Value				101.3%

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**Bi-State Development  
IBEW Union Employees' Pension Plan**

**April 1, 2017 Actuarial Valuation**

**Development of Recommended Contribution**

	<u>April 1, 2017</u>
1. Present Value of Future Benefits	
a. Active Participants	4,076,593
b. Terminated Vested Participants/Nonvested Return of Contributions	227,216
c. Participants Receiving Payments	<u>1,531,138</u>
d. Total	5,834,947
2. Present Value of Future Normal Costs	791,880
3. Entry Age Normal Accrued Liability: (1d) - (2)	5,043,067
4. Actuarial Value of Assets	4,524,789
5. Unfunded Entry Age Normal Accrued Liability: (3) - (4)	518,278
6. Entry Age Normal Cost	126,306
7. Expense Load	30,026
8. Entry Age Normal Cost with Expense Load: (6) + (7)	156,332
9. Amortization of Unfunded Entry Age Normal Accrued Liability Over 30 Years from April 1, 2005	48,153
10. Recommended Contribution at Beginning of Year: (8) + (9)	204,485
11. Recommended Contribution with Interest	215,129
12. Number of Active Participants	49
13. Required Weekly Contribution per Active Participant	\$84.43
14. Additional Weekly Contribution Required to Achieve 100% Funded Ratio	\$323.62
15. Total Weekly Contribution at Year End: (13) + (14)	\$408.05

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**Bi-State Development  
IBEW Union Employees' Pension Plan**

**April 1, 2017 Actuarial Valuation**

**Schedule of Funding Progress \***

Date of Valuation	Actuarial Value of Assets	Entry Age Normal (EAN) Accrued Liability	Unfunded EAN Accrued Liability (UAL)	Funded Ratio	Covered Payroll	UAL as a Percentage of Covered Payroll
(1)	(2)	(3)	(4) = (3) - (2)	(5)=(2)/(3)	(6)	(7) = (4) / (6)
04/01/1993	\$211,320	\$371,388	\$160,068	56.9%	N/A	N/A
04/01/1994	226,514	370,713	144,199	61.1%	N/A	N/A
04/01/1995	266,550	407,815	141,265	65.4%	N/A	N/A
04/01/1996	296,961	372,770	75,809	79.7%	695,542	10.9%
04/01/1997	353,415	477,288	123,873	74.0%	652,272	19.0%
04/01/1998	408,223	431,264	23,041	94.7%	691,395	3.3%
04/01/1999	477,040	606,096	129,056	78.7%	N/A	N/A
04/01/2000	666,432	835,351	168,919	79.8%	904,310	18.7%
04/01/2001	695,759	664,048	(31,711)	104.8%	911,560	-3.5%
04/01/2002	736,255	945,627	209,372	77.9%	1,343,097	15.6%
04/01/2003	749,454	1,029,808	280,354	72.8%	1,351,709	20.7%
04/01/2004	776,441	1,256,497	480,056	61.8%	1,739,606	27.6%
04/01/2005	839,041	1,634,761	795,720	51.3%	2,001,896	39.7%
04/01/2006	924,183	1,878,842	954,659	49.2%	2,081,142	45.9%
04/01/2007	1,126,783	1,787,944	661,161	63.0%	2,512,973	26.3%
04/01/2008	1,407,149	1,722,667	315,518	81.7%	2,804,130	11.3%
04/01/2009	1,521,939	2,151,016	629,077	70.8%	2,939,269	21.4%
04/01/2010	1,649,706	2,319,562	669,856	71.1%	2,887,747	23.2%
04/01/2011	1,897,438	2,656,475	759,037	71.4%	3,035,219	25.0%
04/01/2012	2,115,437	2,870,487	755,050	73.7%	3,125,678	24.2%
04/01/2013	2,400,205	3,342,338	942,133	71.8%	3,168,194	29.7%
04/01/2014	2,916,189	3,696,193	780,004	78.9%	3,362,133	23.2%
04/01/2015	3,586,753	4,145,982	559,229	86.5%	3,407,498	16.4%
04/01/2016	4,053,469	4,673,515	620,046	86.7%	3,384,826	18.3%
04/01/2017	4,524,789	5,043,067	518,278	89.7%	2,996,656	17.3%

\* GASB Accounting disclosures as of March 31, 2015 and later are included in separate reports.

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**Bi-State Development  
IBEW Union Employees' Pension Plan**

**April 1, 2017 Actuarial Valuation**

**Summary of Participant Data**

	<u>April 1, 2016</u>	<u>April 1, 2017</u>
1. Active Participants		
a. Count	56	49 *
b. Average Age	49.9	50.7
c. Average Service	11.6	12.7
2. Terminated Nonvested Participants Due Refund		
a. Count	1	3
b. Total Refund Due	\$25	\$15,539
3. Terminated Vested Participants		
a. Count	5	7
b. Total Monthly Benefits	\$2,816	\$4,136
c. Average Monthly Benefit	\$563	\$591
4. Participants Receiving Payments		
a. Count	10	13
b. Total Monthly Benefits	\$11,493	\$14,301
c. Average Monthly Benefit	\$1,149	\$1,100

\* Includes 5 Participants who transferred from the ATU Local 788 Plan. In addition, there are 7 Participants who transferred to the Salaried Plan that have liabilities included in this valuation for prior IBEW service.

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**Bi-State Development  
IBEW Union Employees' Pension Plan**

**April 1, 2017 Actuarial Valuation**

**Distribution of Active Participants by Age and by Years of Service**  
(as of April 1, 2017)

Age	YEARS OF CREDITED SERVICE										Total
	Under 1 No.	1 to 4 No.	5 to 9 No.	10 to 14 No.	15 to 19 No.	20 to 24 No.	25 to 29 No.	30 to 34 No.	35 to 39 No.	40 and up No.	
Under 25	0	0	0	0	0	0	0	0	0	0	0
25 to 29	0	1	0	0	0	0	0	0	0	0	1
30 to 34	0	0	0	1	0	0	0	0	0	0	1
35 to 39	0	0	4	2	2	0	0	0	0	0	8
40 to 44	0	3	0	2	0	0	0	0	0	0	5
45 to 49	0	1	2	0	1	2	0	0	0	0	6
50 to 54	0	0	3	2	3	1	0	0	0	0	9
55 to 59	0	1	4	3	3	0	0	0	0	0	11
60 to 64	0	0	1	3	2	0	0	0	0	0	6
65 to 69	0	0	0	0	0	1	1	0	0	0	2
70 and up	0	0	0	0	0	0	0	0	0	0	0
Total	0	6	14	13	11	4	1	0	0	0	49

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**Bi-State Development  
IBEW Union Employees' Pension Plan**

**April 1, 2017 Actuarial Valuation**

**Summary of Changes in Participant Data**

	<u>Active Participants</u>	<u>Terminated Nonvested Due Refund</u>	<u>Terminated Vested</u>	<u>Retirees</u>	<u>Total</u>
Count as of April 1, 2016	56	1	5	10	72
New Entrants	0	0	0	0	0
Returned to Active Employment	0	0	0	0	0
Transferred to a Salaried Position	(1)	0	1	0	0
Retired	(3)	0	0	3	0
Became Disabled	0	0	0	0	0
Died with Beneficiary	0	0	0	0	0
New Beneficiaries	0	0	0	0	0
Died without Beneficiary	0	0	0	0	0
Terminated Vested	(1)	0	1	0	0
Terminated Vested - Received Refund	0	0	0	0	0
Terminated Nonvested - Due Refund	(2)	2	0	0	0
Terminated Nonvested - Received Refund	0	0	0	0	0
Net Data Corrections	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Net Changes	<u>(7)</u>	<u>2</u>	<u>2</u>	<u>3</u>	<u>0</u>
Count as of April 1, 2017	49	3	7	13	72

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**Bi-State Development  
IBEW Union Employees' Pension Plan**

**April 1, 2017 Actuarial Valuation**

**Actuarial Assumptions and Methods**

**Interest**

7.00% per annum, net of expenses, compounded annually (effective 4/1/2016)

**Mortality**

Healthy Lives Pre-Retirement: RP-2014 Employees Mortality Table, with Blue Collar adjustment, male and female rates, projected 5 years from the valuation date based on Scale BB

Healthy Lives Post-Retirement: RP-2014 Healthy Annuitant Mortality Table, with Blue Collar adjustment, male and female rates, projected 5 years from the valuation date based on Scale BB

Disabled Lives: RP-2014 Disabled Mortality Table, male and female rates

**Withdrawal**

Rates at selected ages are:

<u>Age</u>	<u>Percent Terminating During Year</u>
25	6.3
30	5.0
35	4.0
40	3.0
45	2.5
50	2.0
55	1.0
60	0.0

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**Bi-State Development  
IBEW Union Employees' Pension Plan**

**April 1, 2017 Actuarial Valuation**

**Actuarial Assumptions and Methods (continued)**

**Retirement**

Rates vary by age as follows:

<u>Age</u>	<u>Percent Retiring During Year</u>
45 - 54	1%
55	5
56	5
57	5
58	5
59	5
60	5
61	10
62	15
63	10
64	10
65	65
66	25
67 & over	100

15% of Participants are assumed to retire when first eligible, but not prior to age 50.

**Disability**

Rates at selected ages are:

<u>Age</u>	<u>Percent Becoming Disabled During Year</u>
25	0.251%
30	0.275
35	0.359
40	0.488
45	0.738
50	1.113
55	1.922
60	3.300
65	0.000

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**Bi-State Development  
IBEW Union Employees' Pension Plan**

**April 1, 2017 Actuarial Valuation**

**Actuarial Assumptions and Methods (continued)**

**Expenses**

Average of the actual administrative expenses for the last 3 plan years

**Marriage**

90% of members are assumed to be married at the time of withdrawal, retirement, death or disability. Males are assumed to be 3 years older than their spouses.

**Supplemental Pension**

Liability associated with the Supplemental Pension is assumed equivalent to plan sponsor sick leave cash out deposits.

**Form of Payment**

All members are assumed to elect the Life Annuity.

**Actuarial Cost Method**

The Entry Age Normal Cost Method on a closed group basis was used. Normal costs are computed as a level dollar amount. Changes in the Entry Age Normal Unfunded Accrued Liability (UAL) are amortized as a level dollar amount over a 30 year period effective April 1, 2005. For the April 1, 2017 valuation the remaining amortization period is 18 years.

**Asset Valuation Method**

The actuarial value of assets was determined using the expected return method, without phase-in, effective April 1, 2010. This method is fully defined in IRS Revenue Procedure 2000-40, Section 3.15.

Under this method, the gain or loss for a year is the difference between the expected value of assets for the year and the market value. The expected value is the market value brought forward one year at the assumed rate of return with appropriate adjustments for contributions and disbursements. The actuarial value of assets is equal to the market value of assets, with the gains and losses deferred as follows:

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**Bi-State Development  
IBEW Union Employees' Pension Plan**

**April 1, 2017 Actuarial Valuation**

**Actuarial Assumptions and Methods (continued)**

- i. 80% of the prior year gain/loss
- ii. 60% of the second preceding year's gain/loss
- iii. 40% of the third preceding year's gain/loss
- iv. 20% of the fourth preceding year's gain/loss

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**Bi-State Development  
IBEW Union Employees' Pension Plan**

**April 1, 2017 Actuarial Valuation**

**Summary of Plan Provisions**

A summary of the current primary provisions of the Plan is presented below.

**Effective Date**

The most recent restatement was effective March 1, 2013.

**Eligibility**

Members become eligible after their first hour of employment.

**Employee**

Employed by Bi-State Development on a full-time basis, in the bargaining unit represented by the union and in Covered Employment. The Plan was closed to new entrants effective January 1, 2014.

**Credited Service**

Continuous Service from date of hire until date of termination earned in terms of weeks and credited in full years.

**Vesting**

Members become 100% vested upon completion of 10 years of Credited Service and are entitled to a monthly benefit payable at age 65. Members that terminate prior to vesting are entitled to their employee contributions with interest compounded at 3.0% per year paid to them in a lump sum.

**Retirement Date**

First of the month coincident with or next following the earlier of age 60 with 10 or more years of Credited Service, or any age with 25 or more years of Credited Service

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**Bi-State Development  
IBEW Union Employees' Pension Plan**

**April 1, 2017 Actuarial Valuation**

**Summary of Plan Provisions (continued)**

**Retirement Benefit**

A monthly benefit commencing on the Participant's retirement rate in the amount of \$60 times years of Credited Service

**Late Retirement Benefit**

Accrued Benefit calculated at Late Retirement Date

**Disability Benefit**

If Participants become disabled while in employment after completing 10 years of Credited Service, they may be entitled to a disability benefit.

The disability benefit is equal to the Accrued Benefit as of the date of disability

**Pre-Retirement Death Benefit**

If a Participant dies prior to retirement and after completing 10 years of Credited Service, the benefit payable is the amount of the retirement benefit the Participant would have been entitled to receive if the Participant had retired on the first day of the month of death and elected the payment option elected by the Participant's spouse or designated beneficiary.

Participants who die prior to becoming eligible for retirement benefits will have their employee contributions accumulated with interest at 3% per year paid to their beneficiary or beneficiaries.

**Unused Sick Leave**

Participants who retire under Normal, Late or Disability Retirement and beneficiaries of Participants who die with 10 or more years of Credited Service are entitled to a Supplemental Pension based on their unused sick leave account. Sick leave may be converted to either a single lump sum or monthly payments for 3, 5, 10, 15 or 20 years based on conversion factors contained in the Plan Document.

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**Bi-State Development  
IBEW Union Employees' Pension Plan**

**April 1, 2017 Actuarial Valuation**

**Summary of Plan Provisions (continued)**

**Normal Form of Payment**

Single Life Annuity

**Optional Forms of Payment**

Ten-Year Certain and Life Option  
Contingent Annuitant Options (100% or 50%)

**Transferred Participants**

Participants who have transferred to another Bi-State Development Pension Plan will have their benefit based on Credited Service under this Plan calculated according to the benefit formula of the Bi-State Development Pension Plan that they are active in at the time of their termination.

**Contributions**

Bi-State Development pays 70% of the weekly contributions to the Plan, and the Participants pay 30%. For the special contribution assessments, Bi-State Development pays 80%, and the Participants pay 20%.

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