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November 4, 2015

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Treasurer-Controller
Northern California Power Agency
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***Northern California Power Agency –
GASB 45 Actuarial Valuation of Post Employment Benefits as of June 30, 2015***

Dear Ms. Ainsworth:

I am pleased to enclose the above titled Milliman report for the Northern California Power Agency.

If you have any questions, please give me a call at (415) 394-3740.

Sincerely,

A handwritten signature in black ink, appearing to read "John R. Botsford".

John R. Botsford, FSA, MAAA

JRB:jvb
enc.

Northern California Power Agency

GASB 45 Actuarial Valuation of Post Employment
Benefits Other than Pensions as of June 30, 2015

Prepared by:

John R. Botsford
FSA, MAAA

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***Northern California Power Agency –
GASB 45 Actuarial Valuation of Post Employment Benefits as of June 30, 2015***

At the request of the Northern California Power Agency, we have completed an actuarial valuation of post employment benefits as of June 30, 2015.

The purpose of this report is to determine the Annual Required Contribution and required financial disclosures under the Governmental Accounting Standards Board Statement No. 45 – *Accounting and Financial Reporting by Employers for Postemployment Benefits Other Than Pensions* (GASB 45). Our determinations reflect the procedures and methods prescribed in GASB 45.

In preparing our report, we relied, without audit, on information (some oral and some in writing) supplied by the Agency's staff. This information includes but is not limited to employee census data, financial information, and the Agency's other post employment benefit (OPEB) provisions. While Milliman has not audited the financial and census data, they have been reviewed for reasonableness and are, in our opinion, sufficient and reliable for the purposes of our calculations. If any of this information as summarized in this report is inaccurate or incomplete, the results shown could be materially affected and this report may need to be revised.

All costs, liabilities, rates of interest, and other factors for the Agency have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the Agency and reasonable expectations); and which, in combination, offer our best estimate of anticipated experience affecting the Agency. Further, in our opinion, each actuarial assumption used is reasonably related to the experience of the Agency and to reasonable expectations which, in combination, represent our best estimate of anticipated experience for the Agency.

This valuation report is only an estimate of the Agency's other post employment benefit liability as of a single date. It can neither predict the future condition of the Agency's other post employment benefit liability nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of other post employment benefits, only the timing of the Agency's contributions to the extent that the plan is prefunded. 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: Agency 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); and changes in other post employment benefit 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. The Agency has the final decision regarding the appropriateness of the assumptions and actuarial cost methods.

Actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting the Agency in fulfilling its financial accounting requirements. The computations prepared for this purpose may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the Agency's funding policy and goals. The calculations in this report have been made on a basis consistent with our understanding of the Agency's current other post employment benefits described in Appendix A of this report, and of GASB Statement No. 45. 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 internal business use of the Northern California Power Agency. 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 exceptions:

- Northern California Power Agency may provide a copy of Milliman's work, in its entirety, to Northern California Power Agency'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 Northern California Power Agency.
- Northern California Power Agency may provide a copy of Milliman's work, in its entirety, to other governmental entities, as required by law.

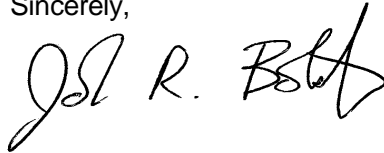
No third party recipient of Milliman's work product should rely upon Milliman's work product. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

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

The signing actuary is 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, the report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices which are consistent with the applicable Actuarial Standards of Practice of the American Academy of Actuaries. The undersigned is a member of the American Academy of Actuaries and meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

Sincerely,

A handwritten signature in black ink, appearing to read "John R. Botsford". The signature is fluid and cursive, with the first name "John" being the most prominent.

John R. Botsford, FSA, MAAA
Principal and Consulting Actuary

JRB:jvb

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Introduction

Milliman, Inc. ("Milliman") has been retained by the Northern California Power Agency ("Agency") to provide a GASB 45 actuarial valuation of its post employment benefit (OPEB) plans. In our valuation we:

- Project expected Agency benefit payments
- Calculate the present value of future benefits
- Calculate the actuarial accrued liability (present value of benefits attributable to past service)
- Determine the Annual Required Contribution (ARC) and annual OPEB expense under GASB Statement No. 45
- Prepare the financial statement disclosures relating to the funded status of the plan

Background

Employees are eligible for retiree health benefits if they are at least age 50, with at least 5 years CalPERS service (10 years for employees hired on or after January 1, 2009). The retiree health benefits are described in the Summary of Benefits for current employees and retirees in Appendix A.

Assumptions

With any valuation of future benefits, assumptions of anticipated future events are required. If actual events differ from the assumptions made, the actual cost of the plan will vary as well. The following assumptions should be reviewed for appropriateness.

Health Cost Trend. We have assumed medical premiums will increase according to the health cost inflation trend derived by using the "Getzen" model developed by the Society of Actuaries. The prior valuation had assumed a 2014/2015 trend of 6.0% for HMO Plans and 5% for PPO Plans for Pre 65 employees, and 4.5%/4.25% for HMO/PPO, respectively for Post 65 employees, and 4.5% for all subsequent years. Please see Appendix B for an explanation of this trend model.

Demographic Rates. Demographic assumptions regarding mortality, retirement and withdrawal are based on statistics taken from the latest California PERS (CalPERS) pension report. The mortality assumption is based on the current mortality rates from the latest CalPERS pension experience report and includes a projection to 2028 with scale BB.

Implicit Rate Subsidy. Actuarial standards of practice now require measurement of an implicit rate subsidy for community rated health plans (this includes all health plans sponsored by CalPERS). Therefore we measured the implicit rate subsidy for the Agency. Appendix B provides a more detailed summary of the implicit rate subsidy.

Discount Rate. GASB 45 requires that the interest rate used to discount future benefit payments back to the present be based on the expected rate of return on any investments set aside to pay for these benefits. Assets are invested in the California Employers' Retiree Benefit Trust ("CERBT") Fund. We have used a discount rate of 7.00% for this valuation, down from the 7.61% assumed in the prior valuation. This rate is derived based on the fund's investment policy as shown below and includes a 2.50% long-term inflation assumptions.

Asset Class	Expected Arithmetic Nominal Return (50 yrs)	Asset Allocation
Global Equity	8.53%	57.00%
U.S. Fixed Income	6.46%	27.00%
Treasury Inflation-Protected Securities	4.19%	5.00%
Real Estate Investment Trusts	7.95%	8.00%
Commodities	6.12%	3.00%
Expected Geometric Return (50 yrs) *		6.96%

* A geometric return is one that considers compounding and reflects the effect that variations in actual returns each year will have on long term asset returns.

Based on the above asset allocation, we have chosen a 7.00% discount rate for this valuation.

We used market value assets as the actuarial value of assets. The prior valuation's actuarial value of assets was based on a method that recognized investment gains or losses over 15 years. The prior asset valuation method was the same as CalPERS prior asset smoothing method for its pension fund. CalPERS has since changed its asset valuation method to be the market value of assets.

A complete summary of the actuarial assumptions is presented in Appendix B.

Results of Study

The valuation results are summarized in the following exhibit and use the following terms:

The **Present Value of Benefits** is the present value of projected benefits (portion of monthly premiums paid by the Agency) discounted at the valuation interest rate (7.00%).

The **Actuarial Accrued Liability (AAL)** is the present value of benefits that are attributed to past service only. The portion attributed to future employee service is excluded. For retirees, this is equal to the present value of benefits. For active employees, this is equal to the present value of benefits prorated by service to date over service at the expected retirement age.

The **Normal Cost** is that portion of the Agency provided benefit attributable to employee service in the current year. Employees are assumed to have an equal portion of the present value of benefits attributed to each year of service from date of hire to expected retirement age.

The **Annual Required Contribution (ARC)** is equal to the Normal Cost plus an amount to amortize the unfunded AAL over 30 years from June 30, 2013 on a “closed” basis. There are 28 years remaining as of June 30, 2015.

	June 30, 2015	June 30, 2013 ¹
Active Employees	149	166
Retirees and Deferred Employees	<u>123</u>	<u>112</u>
Total Participants	272	278
Actuarial Accrued Liability	\$ 36,724,032	\$ 22,477,396
Assets	<u>22,291,159</u>	<u>17,529,070</u>
Unfunded Actuarial Accrued Liability/(Surplus)	\$ 14,432,873	\$ 4,948,326
Normal Cost end of Fiscal Year following Valuation Date	\$ 1,112,727	\$ 605,483
Annual Required Contribution (ARC) for Fiscal Year following Valuation Date	\$ 2,301,880	\$ 871,135
Annual benefit payments for Fiscal Year following Valuation Date	\$ 1,670,878	\$ N/A

¹ Prior valuation figures were provided by the prior actuary.

Changes from Prior Valuation

The Actuarial Accrued Liability (AAL) increased by approximately \$14.2 million since the last valuation. Exhibit 7 shows a reconciliation of the AAL from the prior valuation to current valuation in more detail.

Variability of Results

The results contained in this report represent our best estimates. However, variation from these or any other estimates of future retiree medical costs is not only possible but probable. Actual future costs may vary significantly from estimates in this report.

Exhibit 1. Projected Benefit Payments

The table below illustrates the projected pay-as-you-go Agency costs of providing retiree health benefits. The projections only consider the closed group of existing employees and retirees based on current benefit plan provisions. The **Explicit Subsidy** represents the Agency's contribution toward the payment of monthly premiums. The **Implicit Subsidy** represents the value of the expected claims costs for non-Medicare retirees in excess of the medical premiums.

Fiscal Year Ending 6/30	Future Retirees		Current Retirees		Total
	Explicit Subsidy	Implicit Subsidy	Explicit Subsidy	Implicit Subsidy	
2016	\$ 85,203	\$ 19,111	\$ 1,268,490	\$ 298,074	\$ 1,670,878
2017	186,835	42,988	1,311,768	317,652	1,859,243
2018	304,682	74,294	1,333,276	318,776	2,031,028
2019	421,857	122,694	1,313,337	264,749	2,122,637
2020	539,884	166,479	1,332,664	271,580	2,310,607
2021	647,561	204,853	1,324,459	230,055	2,406,928
2022	771,229	262,709	1,297,550	179,600	2,511,088
2023	864,708	280,697	1,315,441	170,610	2,631,456
2024	998,723	338,815	1,338,007	162,660	2,838,205
2025	1,126,420	398,447	1,353,790	130,712	3,009,369
2026	1,233,033	431,260	1,338,862	55,706	3,058,861
2027	1,339,500	441,508	1,342,067	34,442	3,157,517
2028	1,406,812	374,815	1,367,447	15,884	3,164,958
2029	1,542,018	400,786	1,395,610	6,957	3,345,371
2030	1,625,922	370,816	1,428,769	8,263	3,433,770
2031	1,673,869	275,197	1,458,125	9,726	3,416,917
2032	1,800,854	258,987	1,483,014	11,452	3,554,307
2033	1,975,870	307,519	1,502,788	13,387	3,799,564
2034	2,117,451	304,671	1,506,065	0	3,928,187
2035	2,299,110	357,674	1,513,231	0	4,170,015

Exhibit 2. Liabilities and Normal Cost

The **Present Value of Benefits** is the actuarial present value of benefits expected to be paid for all retirees and covered employees.

The **Actuarial Accrued Liability (AAL)** is the actuarial present value of benefits attributed to employee service rendered prior to the valuation date. The AAL equals the present value of benefits multiplied by a fraction equal to service to date over service at expected retirement.

The **Normal Cost** is the actuarial present value of benefits attributed to one year of service. This equals the present value of benefits divided by service at expected retirement. Since retirees are not accruing any more service, their normal cost is zero.

	June 30, 2015	June 30, 2013 ¹
Present Value of Benefits		
Actives	\$ 24,504,656	\$ 13,567,755
Retirees	<u>20,819,851</u>	<u>13,202,148</u>
Total	\$ 45,324,507	\$ 26,769,903
Actuarial Accrued Liability		
Actives	\$ 15,904,181	\$ 9,275,248
Retirees	<u>20,819,851</u>	<u>13,202,148</u>
Total	\$ 36,724,032	\$ 22,477,396
Normal Cost at end of Fiscal Year following Valuation Date	\$ 1,112,727	\$ 605,483

¹ Prior valuation figures were provided by the prior actuary.

Exhibit 3. Unfunded Actuarial Accrued Liability

The Unfunded Actuarial Accrued Liability (UAAL) is the actuarial liability offset by any assets set aside to provide retiree health benefits. This is equal to the value of the retiree health benefits accrued to date that has not been funded. The UAAL must be amortized over a period not exceeding 30 years and included in the ARC amount (shown in Exhibit 4) each year. The amortization of UAAL shown in the exhibit below is based on a level dollar amortization over 30 years from June 30, 2013 on a “closed” basis. There are 28 years remaining as of June 30, 2015.

June 30, 2015	
Unfunded Actuarial Liability (UAAL)	
Actuarial Accrued Liability	\$ 36,724,032
Assets	<u>22,291,159</u>
Unfunded Actuarial Accrued Liability	\$ 14,432,873
Funded percentage	60.7%
Amortization of UAAL for ARC	
UAAL	\$ 14,432,873
Amortization Period as of June 30, 2015	28 years
Level Dollar Amortization Factor	12.9867
Amortization Amount – June 30, 2015	\$ 1,111,358
Interest to end of fiscal year	<u>77,795</u>
Amortization Amount – June 30, 2016	\$ 1,189,153

Exhibit 4. Required Financial Statement Disclosures

The following table shows the calculation of the Annual Required Contribution and Net OPEB Obligation.

	FOR THE FISCAL YEAR ENDING	
	06/30/2016	06/30/2015
Determination of Annual Required Contribution		
Normal Cost plus interest to fiscal year end	\$ 1,112,727	
Amortization of UAAL	<u>1,189,153</u>	
Annual Required Contribution (ARC)	\$ 2,301,880	\$ 899,447
Determination of Net OPEB Obligation		
Annual Required Contribution	\$ 2,301,880	\$ 899,447
Interest on prior year Net OPEB Obligation	(48,032)	0
Adjustment to ARC	<u>52,837</u>	<u>0</u>
Annual OPEB Cost	\$ 2,306,684	\$ 899,447
Contributions Made toward OPEB Costs ¹	<u>TBD</u>	<u>\$ (1,585,620)</u>
Increase in Net OPEB Obligation	TBD	\$ (686,173)
Net OPEB Obligation / (Asset) – beginning of year	\$ (686,173)	\$ 0
Net OPEB Obligation / (Asset) – end of year	TBD	\$ (686,173)

¹ The contributions for the 2014-15 FY include pay-as-you-go retiree premiums paid directly by NCPA as well as contributions made to the CERBT. NCPA reported contributions, including pay-as-you-go retiree premiums, of \$1,585,620 for FY 2014-15. The actual Pay-as-you-go amount will not be known until the end of the fiscal year ending June 30, 2016.

The following table shows the annual OPEB cost and net OPEB obligation for the prior year.

Fiscal Year Ended	Annual OPEB Cost	Percentage of OPEB Cost Contributed	Net OPEB Obligation / (Asset)
06/30/2015	\$ 899,447	176.3%	\$ (686,173)
06/30/2016	2,306,684	TBD	TBD

Funded Status and Funding Progress. As of June 30, 2015, the most recent actuarial valuation date, the plan was 60.7% funded. The actuarial accrued liability for benefits was \$36.7 million, and the actuarial value of assets was \$22.3 million, resulting in an unfunded accrued liability of \$14.4 million.

Exhibit 5. Required Supplementary Information

The following tables show a schedule of Funding Progress required under GASB 45 for the Agency.

Actuarial Valuation Date	Actuarial Value of Assets	AAL	UAAL	Funded Ratio
06/30/2011	\$ 14,464,987	\$ 21,599,763	\$ 7,123,776	67.0%
06/30/2013	17,529,070	22,477,396	4,948,326	78.0%
06/30/2015	22,291,159	36,724,032	14,432,873	60.7%

Exhibit 6. Breakdown of Valuation Results by Subgroup

The following table shows a breakdown of liabilities for Admin, IBEW, and HEA.

	Admin	IBEW	HEA	Total
Present Value of Benefits				
Actives	\$ 13,294,274	\$ 9,373,216	\$ 1,837,166	\$ 24,504,656
Retirees	<u>13,237,759</u>	<u>5,714,366</u>	<u>1,867,726</u>	<u>20,819,851</u>
Total	26,532,033	15,087,582	3,704,892	45,324,507
Actuarial Accrued Liability				
Actives	\$ 8,158,224	\$ 6,681,634	\$ 1,064,323	\$ 15,904,181
Retirees	<u>13,237,759</u>	<u>5,714,366</u>	<u>1,867,726</u>	<u>20,819,851</u>
Total	21,395,983	12,396,000	2,932,049	36,724,032
Assets				<u>22,291,159</u>
Unfunded Actuarial Accrued Liability				\$ 14,432,873
Funded Ratio				60.7%

Exhibit 7. Valuation Results – Changes from Prior Valuation

The following exhibit shows changes of Actuarial Accrued Liability (AAL) from the prior valuation:

	In Millions
Actuarial Accrued Liability (AAL) as of June 30, 2013	\$ 22.5
Increase due to benefit accrued from July 1, 2013 to June 30, 2015	\$ 1.3
Decrease due to expected benefit payments made in July 1, 2013 to June 30, 2015	(2.1)
Increase due to decrease in the discount period in July 1, 2013 to June 30, 2015	3.4
Increase due to updates to future health cost trends	4.8
Increase due to valuation of implicit rate subsidy	4.2
Increase due to change of discount rate	1.7
Increase due to assumption changes *	1.8
Decrease due to plan experience (such as demographics changes, ... etc)	<u>(0.9)</u>
Total change in Actuarial Accrued Liability	\$ 14.2
Actuarial Accrued Liability (AAL) as of June 30, 2015	\$ 36.7

* Updated the mortality and retirement assumptions to reflect the latest CalPERS pension report.

Exhibit 8. Market Value of Assets

We used market value assets as the actuarial value of assets. The prior valuation's actuarial values of assets are based on a 5 years smoothing method. The following table shows the summary of the plan's assets invested in the CERBT.

Assets as of July 1, 2014	\$ 21,921,156
Investment Earnings	(24,073)
Administrative Expenses	(22,156)
Benefit Payments from Trust	0
Annual Contributions	<u>416,232</u>
Assets as of June 30, 2015	\$ 22,291,159

Exhibit 9. ARC under Alternative Amortization Methods and Schedules

The **Annual Required Contribution (ARC)** is equal to the Normal Cost plus an amount to amortize the unfunded actuarial accrued liabilities (UAAL). The amortization of UAAL is based on a level dollar amortization over 30 years from June 30, 2013 on a “closed” basis. There are 28 years remaining as of June 30, 2015.

Under GASB 45, entities may amortize their unfunded actuarial accrued liabilities (UAAL) over a period of up to 30 years as either a level dollar amount (dollar expected to remain the same each year until amount is fully amortized) or a level percentage of payroll (initial amount is less than the level dollar amortization amount but increases at the same rate as payroll is expected to increase). The amortization period may either be “Closed” (amortization period declines each year until it reaches zero) or “Open” (amortization period is reset each valuation date). For the prior valuation, the Agency elected to amortize its UAAL as a level percentage of expected payroll over 30 years on an “open” basis. This method, while permitted by GASB accounting standards, would result in a negative amortization of the UAAL every year meaning that the amortization amount will not be sufficient to reduce the UAAL, and the UAAL would be expected to increase rather than decrease from year to year.

The following table shows the determination of the ARC for the 2015-16 fiscal year based on a level percentage of payroll amortization method (assuming 3% per year increases to payroll) and a level dollar amortization method under various amortization periods.

Amortization Period	ARC Under Level % of Payroll	ARC Under Level Dollar
28 Years	\$ 1,993,000	\$ 2,302,000*
10 Years	2,935,000	3,168,000
8 Years	3,310,000	3,530,000
5 Years	4,441,000	4,633,000

* Valuation results shown in Exhibits 3 and 4 of this report are based on this amortization method.

Appendix A. Summary of Benefits

The following description of retiree health benefits is intended to be only a brief summary. For details, reference should be made to Benefit Summaries, Plan Documents, CalPERS Health Program Publications, and employee booklets.

Coverage Eligibility

Retirees – Employees are eligible for retiree health benefits if they are at least age 50, with at least 5 years CalPERS service (10 years for employees hired on or after January 1, 2009).

Spouse/Dependent – Eligible to be covered as a dependent of retiree. Coverage continues after death of retiree (until age 26 for surviving minor dependents).

Benefits

Agency provides contributions towards medical benefits for retirees and their dependents up to certain maximums described below. For employees hired before January 1, 2009, Agency pays for 100% of the cost of retiree medical plan premiums. For those employees hired on or after January 1, 2009, Agency pays 50% of the premiums after 10 years of service. This percentage increases 5% each year until the employee has 20 years of service. Employees hired before January 1, 2009 may elect to switch to this vesting schedule at any time. This election may only be made once and is irrevocable.

Agency contracts with California PERS for health plan coverage. The Agency contribution is also capped at 90% of the PERS Choice Family rate for the Sacramento area (\$1,589.47 in 2015). For HEA employees, this cap is \$1,685. If an employee/retiree selects a medical plan with a monthly premium in excess of the Agency maximum contribution, the employee/retiree shall pay the cost difference via a payroll deduction.

Employees may elect a monthly payment via a paycheck in-lieu of medical insurance coverage if they present proof of alternate medical insurance. The amount of the monthly payment will be:

Employee only coverage	\$250.00 per month
Employee plus one coverage	\$370.00 per month
Family coverage	\$475.00 per month

Health Plan Premiums

The following table show monthly retiree health insurance premiums for the 2015 and 2016 premium years under the CalPERS Health Plan for the Sacramento area:

	Monthly Premium Rates – 2015					
	Single		2-Party		Family	
	Under 65	Over 65	Under 65	Over 65	Under 65	Over 65
Anthem HMO Select	\$ 811.14	\$ 445.38	\$ 1,622.28	\$ 890.76	\$ 2,108.96	\$ 1,336.14
Anthem HMO Traditional	940.16	445.38	1,880.32	890.76	2,444.42	1,336.14
Blue Shield Access+	809.22	352.63	1,618.44	705.26	2,103.97	1,057.89
Blue Shield NetValue	758.45	352.63	1,516.90	705.26	1,971.97	1,057.89
Kaiser	660.96	295.51	1,321.92	591.02	1,718.50	886.53
PERS Choice	679.26	339.47	1,358.52	678.94	1,766.08	1,018.41
PERS Select	669.16	339.47	1,338.32	678.94	1,739.82	1,018.41
PERSCare	751.21	368.76	1,502.42	737.52	1,953.15	1,106.28
United Healthcare	623.45	267.41	1,246.90	534.82	1,620.97	802.23

Effective January 1, 2016, CalPERS will no longer offer Medicare Advantage plans offered by Anthem and Blue Shield and will add a Health Net option for non-Medicare retirees only.

	Monthly Premium Rates – 2016					
	Single		2-Party		Family	
	Under 65	Over 65	Under 65	Over 65	Under 65	Over 65
Anthem HMO Select	\$ 902.07	n/a	\$ 1,804.14	n/a	\$ 2,345.38	n/a
Anthem HMO Traditional	1,112.54	n/a	2,225.08	n/a	2,892.60	n/a
Blue Shield Access+	885.33	n/a	1,770.66	n/a	2,301.86	n/a
Blue Shield NetValue	900.73	n/a	1,801.46	n/a	2,341.90	n/a
HealthNet SmartCare	747.55	n/a	1,495.10	n/a	1,943.63	n/a
Kaiser	695.11	297.23	1,390.22	594.46	1,807.29	891.69
PERS Choice	727.58	366.38	1,455.16	732.76	1,891.71	1,099.14
PERS Select	665.35	366.38	1,330.70	732.76	1,729.91	1,099.14
PERSCare	810.40	408.04	1,620.80	816.08	2,107.04	1,224.12
United Healthcare	686.36n/a	320.98	1,372.72	641.96	1,784.54	962.94

Appendix B. Actuarial Cost Method and Assumptions

Actuarial Cost Method

The actuarial cost method used for determining the benefit obligations is the Entry Age Normal Cost Method. Under the principles of this method, the actuarial present value of the projected benefits of each individual included in the valuation is allocated as a level percentage of expected salary for each year of employment between entry age (defined as age at hire) and assumed exit. For this purpose, we have assumed that salary will increase as stated in the assumptions below.

The portion of this actuarial present value allocated to a valuation year is called the normal cost. The portion of this actuarial present value not provided for at a valuation date by the sum of (a) the actuarial value of the assets, and (b) the actuarial present value of future normal costs is called the Unfunded Actuarial Accrued Liability (UAAL). In determining the Annual Required Contribution, the UAAL is fully amortized in the current fiscal year. The actuarial value of assets is equal to the market value of assets held in the trust as of the valuation date.

Valuation Date July 1, 2015

Economic Assumptions

Discount Rate 7.00% effective annual rate

This rate is derived based on the fund's investment policy as shown below and includes a 2.50% long-term inflation assumption.

Asset Class	Expected Arithmetic Nominal Return (50 yrs)	Asset Allocation
Global Equity	8.53%	57.00%
U.S. Fixed Income	6.46%	27.00%
Treasury Inflation-Protected Securities	4.19%	5.00%
Real Estate Investment Trusts	7.95%	8.00%
Commodities	6.12%	3.00%
Expected Geometric Return (50 yrs) *		6.96%

* A geometric return is one that considers compounding and reflects the effect that variations in actual returns each year will have on long term asset returns.

Based on the above asset allocation, we have chosen a 7.00% discount rate for this valuation.

Appendix B. Actuarial Cost Method and Assumptions (continued)

Salary Growth

Annual increases vary by entry age and duration of service. A sample of assumed salary increases are shown below.

Years of Service	Public Agency Miscellaneous		
	(Entry Age 20)	(Entry Age 30)	(Entry Age 40)
0	10.87%	9.13%	6.60%
1	8.64%	7.28%	5.34%
2	6.89%	5.92%	4.37%
3	5.63%	4.85%	3.59%
4	4.66%	3.98%	3.01%
5	3.88%	3.40%	2.52%
10	1.75%	1.55%	1.07%
15	1.26%	1.07%	0.58%
20	0.87%	0.68%	0.29%
25	0.58%	0.58%	0.29%
30	0.58%	0.58%	0.29%

Demographic Assumptions

Demographic assumptions regarding mortality, retirement and withdrawal are listed below.

Withdrawal – Sample probabilities of miscellaneous employees terminating within one year for an employee with five years of service are shown below for selected ages:

Entry Age	Rates
30	7.017%
35	6.246%
40	5.483%
45	1.160%
50	0.970%

Disability

Sample probabilities of becoming eligible for a disability benefit due to different causes within one year are shown below for selected ages:

Age	Male	Female
25	0.017%	0.010%
30	0.019%	0.024%
35	0.049%	0.081%
40	0.122%	0.155%
45	0.191%	0.218%
50	0.213%	0.229%

Appendix B. Actuarial Cost Method and Assumptions (continued)

Retirement – CalPERS Public Agency Miscellaneous Employees was used. Probabilities of retirement within one year are shown below for an active employee with 15 years of service with the Agency:

Age	15 Years of Service
	Males / Females
50	1.90%
51	1.90%
52	2.00%
53	2.50%
54	5.00%
55	11.50%
56	7.80%
57	7.70%
58	8.30%
59	9.80%
60	11.50%
61	12.40%
62	16.60%
63	15.50%
64	15.30%
65	20.20%
66	22.60%
67	18.90%
68	16.80%
69	18.90%
70	20.90%
71	18.80%
72	18.20%
73	12.80%
74	9.30%
75	100.00%

Mortality – Mortality Rates adopted by California PERS board from the most recent experience study for Miscellaneous employees. Rates included a projection to year 2028 with Scale BB.

Election Coverage – We have assumed 100% of new retirees will elect coverage.

Spouse Coverage – We have assumed 85% of new retirees will elect spouse coverage at retirement. For current retirees, actual data was used to value spouse/dependent coverage.

Spouse Age – Female spouses are assumed to be three years younger than male spouses. For current retirees, actual spouse ages were used.

Appendix B. Actuarial Cost Method and Assumptions (continued)

Implicit Rate Subsidy

The California PERS (PEMHCA) health plans charge the same premiums for retirees who are not yet eligible for Medicare as for active employees. Therefore, the retiree premium rates are being subsidized by the inclusion of active lives in setting rates. (Premiums calculated only based on retiree health claims experience would have resulted in higher retiree premiums.) GASB 45 requires that the value of this subsidy be recognized as a liability in valuations of OPEB costs. To account for the fact that per member health costs vary depending on age (higher health costs at older ages), we calculated equivalent per member per month (PMPM) costs that vary by age based on the age distribution of covered members, and based on relative cost factors by age. The covered members are based on the enrollment information released by CalPERS for the Sacramento Region Health Plan Pool. The relative cost factors were developed from the Milliman Health Cost GuidelinesTM. Based on the carrier premium rates and relative age cost factors, we developed age adjusted monthly PMPM health costs for 2015-16 to be used in valuing the implicit rate subsidy.

Age Adjusted Medical PMPM Costs for 2015-16

Age	Retirees		Spouses	
	Male	Female	Male	Female
55	\$771	\$853	\$771	\$853
60	\$999	\$1,004	\$999	\$1,004
64	\$1,265	\$1,159	\$1,265	\$1,159

Since premiums for retirees with Medicare are determined without regard to active life experience, no such subsidy exists for this group.

Appendix B. Actuarial Cost Method and Assumptions (continued)**Health Cost Inflation**

The health cost inflation trend shown below was derived from the “Getzen Model” published by the Society of Actuaries for developing long term health cost trends. Under the Patient Protection and Affordable Care Act of 2010, a federal excise tax will apply for high cost health plans beginning in 2018. A margin to reflect to impact of the excise tax in future years is reflected in the assumed trend. Also the “Getzen” model was updated to reflect latest economic growth factors.

Health Cost Inflation Pre 65		Health Cost Inflation Post 65	
Fiscal Year		Fiscal Year	
2015	7.75%	2015	7.00%
2016	7.00%	2016	6.50%
2017	6.00%	2017	5.75%
2018	5.50%	2018 - 2025	5.25%
2019	5.75%	2026 - 2036	5.50%
2020	6.25%	2037 - 2053	5.25%
2021	6.50%	2054	5.50%
2022 - 2023	6.75%	2055 - 2058	6.00%
2024 - 2025	6.50%	2059 - 2061	5.75%
2026 - 2030	6.75%	2062 - 2064	5.50%
2031 - 2035	6.50%	2065 - 2066	5.25%
2036 - 2037	6.25%	2067 - 2069	5.00%
2038 - 2041	6.00%	2070 - 2088	4.75%
2042 - 2047	5.75%	2089 +	4.50%
2048 - 2056	5.50%		
2057 - 2062	5.25%		
2063 - 2065	5.00%		
2066 - 2068	4.75%		
2069 +	4.50%		

Agency contribution caps were assumed to increase with health cost inflation.

Appendix C. Summary of Participant Data

The following census of participants was used in the actuarial valuation and provided by the Northern California Power Agency. The retiree employees table includes two deferred vested terminations.

Covered Active Employees*

Age/Service	0-4	5-10	10-14	15-19	20+	Total
Under 25	0	0	0	0	0	0
25 – 29	2	0	0	0	0	2
30 – 34	11	1	0	0	0	12
35 – 39	11	7	4	1	0	23
40 – 44	7	5	4	1	1	18
45 – 49	4	4	4	1	2	15
50 – 54	7	8	7	2	13	37
55 – 59	10	3	1	3	10	27
60 – 64	1	3	4	1	1	10
65 & Over	1	1	2	0	1	5
Total	54	32	26	9	28	149

*Two active records were excluded because they were hired after the valuation date (06/30/2015).

Average Age at Valuation Date: 48.8

Average Service at Valuation Date: 11.1

Current Retirees

Age	Male	Female	Total
Under 55	5	1	6
55 – 59	9	8	17
60 – 64	22	2	24
65 – 69	33	6	39
70 & Over	32	5	37
Total	101	22	121

Average Age at Valuation Date: 64.5