Teachers' Retirement System of the State of Illinois

Actuarial Request on behalf of Legislative Leaders submitted November 1, 2013 at 4:42pm with Threshold COLA indexed at Full CPI

Comparison of Contributions and Actuarial Accrued Liability

($ Amounts in Billions)

Prepared 11/30/2013

A — Current Law: **Results of the June 30, 2012 Actuarial Valuation** — *90% Funded Ratio by end of FY 2045 based on Illinois Math*

B — Actuarial Math/Entry Age Normal: **Adopting Entry Age Normal with 100% funded target puts TRS in actuarial mainstream** — *100% Funded Ratio by end of FY 2044 based on Actuarial Math*

C — PSF Provisions (as Side Fund): **Supplemental Contributions to PSF starting FY 2019 reduce future regular State/Fed contributions, TRS reaches 100% funded sooner** — *Transfer side fund to TRS when sufficient to pay off remaining unfunded liability*

D — Benefit Provisions and Tier I Member Rate: **Threshold COLA at $1,000 x svc, staggered COLA delays for actives, Tier I pay capped like Tier II, retirement delayed, money purchase interest rate and member rate reduced** — *Changes to COLA, Reportable Salary, Member Contributions and Retirement Eligibility*

E — Revise Funding Schedule: **Delay Entry Age Normal to FY2016** — *Contribute less in FY2015, more later*

F — "Pure Add-On" Payments: **25% of the difference between the State Contribution under Column A and Column E** — *Transfer side fund to TRS when sufficient to pay off remaining unfunded liability*

Year Ended June 30	A Member	A School District	A Federal Funds	A State	A Total	B Member	B School District	B Federal Funds	B State	B Total	C Member	C School District	C Federal Funds	C State	C Total
2014	$ 1.00	$ 0.12	$ 0.10	$ 3.44	$ 4.66	$ 1.00	$ 0.12	$ 0.10	$ 3.44	$ 4.66	$ 1.00	$ 0.12	$ 0.10	$ 3.44	$ 4.66
2015	1.03	0.13	0.10	3.55	4.81	1.03	0.13	0.11	4.02	5.29	1.03	0.13	0.11	4.02	5.29
2016	1.06	0.13	0.10	3.68	4.97	1.06	0.13	0.12	4.15	5.46	1.06	0.13	0.12	4.15	5.46
2017	1.10	0.14	0.11	3.85	5.20	1.10	0.14	0.12	4.27	5.63	1.10	0.14	0.12	4.27	5.63
2018	1.15	0.15	0.11	4.00	5.41	1.15	0.15	0.12	4.39	5.81	1.15	0.15	0.12	4.39	5.81
2023	1.39	0.20	0.14	4.85	6.58	1.39	0.20	0.14	5.09	6.82	1.39	0.20	0.14	5.70	7.43
2028	1.72	0.28	0.17	5.87	8.04	1.72	0.28	0.16	5.79	7.95	1.72	0.28	0.16	6.41	8.57
2033	2.04	0.36	0.20	6.90	9.50	2.04	0.36	0.18	6.43	9.01	2.04	0.36	0.18	7.04	9.62
2038	2.29	0.38	0.25	8.75	11.67	2.29	0.38	0.19	6.88	9.74	2.29	0.38	0.19	7.49	10.35
2045	2.41	0.16	0.28	9.75	12.60	2.41	0.16	0.00	0.00	2.57	2.41	0.16	0.00	0.00	2.57
Total	56.92	8.16	5.89	207.94	278.91	56.92	8.16	5.09	179.99	250.16	56.92	8.16	4.15	159.99	229.22
June 30, 2012 Actuarial Accrued Liability				PUC=	90.02				EAN=	94.13				EAN=	94.13

Year Ended June 30	D Member	D School District	D Federal Funds	D State	D Total	E Member	E School District	E Federal Funds	E State	E Total	F Member	F School District	F Federal Funds	F State	F Total
2014	$ 1.00	$ 0.12	$ 0.10	$ 3.44	$ 4.66	$ 1.00	$ 0.12	$ 0.10	$ 3.44	$ 4.66	$ 1.00	$ 0.12	$ 0.10	$ 3.44	$ 4.66
2015	0.94	0.13	0.08	2.84	3.99	0.94	0.13	0.08	2.80	3.95	0.94	0.13	0.08	2.80	3.95
2016	0.97	0.13	0.08	2.92	4.10	0.97	0.13	0.08	2.92	4.10	0.97	0.13	0.08	3.11	4.29
2017	1.01	0.14	0.08	3.00	4.23	1.01	0.14	0.08	3.00	4.23	1.01	0.14	0.08	3.21	4.44
2018	1.05	0.15	0.09	3.07	4.36	1.05	0.15	0.09	3.07	4.36	1.05	0.15	0.09	3.31	4.60
2023	1.27	0.20	0.10	4.06	5.63	1.27	0.20	0.10	4.06	5.63	1.27	0.20	0.10	4.26	5.83
2028	1.55	0.28	0.11	4.37	6.31	1.55	0.28	0.11	4.37	6.31	1.55	0.28	0.11	4.74	6.68
2033	1.85	0.36	0.12	4.73	7.06	1.85	0.36	0.12	4.73	7.06	1.85	0.36	0.12	5.28	7.61
2038	2.17	0.38	0.13	5.24	7.92	2.17	0.38	0.13	5.25	7.93	2.17	0.38	0.00	0.00	2.55
2045	2.43	0.16	0.00	0.00	2.59	2.43	0.16	0.00	0.00	2.59	2.43	0.16	0.00	0.00	2.59
Total	53.38	8.16	2.63	106.01	170.18	53.38	8.16	2.64	106.07	170.25	53.38	8.16	2.32	100.80	164.66
June 30, 2012 Actuarial Accrued Liability				EAN=	80.76		PUC =	77.71	EAN =	80.76		PUC =	77.71	EAN =	80.76

Amount of CHANGE from Current Law

Year	B Member	B School District	B Federal Funds	B State	B Total	C Member	C School District	C Federal Funds	C State	C Total
2014	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2015	0.00	0.00	0.01	0.47	0.48	0.00	0.00	0.01	0.47	0.48
2016	0.00	0.00	0.02	0.47	0.49	0.00	0.00	0.02	0.47	0.49
2017	0.00	0.00	0.01	0.42	0.43	0.00	0.00	0.01	0.42	0.43
2018	0.00	0.00	0.01	0.39	0.40	0.00	0.00	0.01	0.39	0.40
2023	0.00	0.00	0.00	0.24	0.24	0.00	0.00	0.00	0.85	0.85
2028	0.00	0.00	(0.01)	(0.08)	(0.09)	0.00	0.00	(0.01)	0.54	0.53
2033	0.00	0.00	(0.02)	(0.47)	(0.49)	0.00	0.00	(0.02)	0.14	0.12
2038	0.00	0.00	(0.06)	(1.87)	(1.93)	0.00	0.00	(0.06)	(1.26)	(1.32)
2045	0.00	0.00	(0.28)	(9.75)	(10.03)	0.00	0.00	(0.28)	(9.75)	(10.03)
Total	0.00	0.00	(0.80)	(27.95)	(28.75)	0.00	0.00	(1.74)	(47.95)	(49.69)
June 30, 2012 Actuarial Accrued Liability					4.11					4.11

Year	D Member	D School District	D Federal Funds	D State	D Total	E Member	E School District	E Federal Funds	E State	E Total	F Member	F School District	F Federal Funds	F State	F Total
2014	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2015	(0.09)	0.00	(0.02)	(0.71)	(0.82)	(0.09)	0.00	(0.02)	(0.75)	(0.86)	(0.09)	0.00	(0.02)	(0.75)	(0.86)
2016	(0.09)	0.00	(0.02)	(0.76)	(0.87)	(0.09)	0.00	(0.02)	(0.76)	(0.87)	(0.09)	0.00	(0.02)	(0.57)	(0.68)
2017	(0.09)	0.00	(0.03)	(0.85)	(0.97)	(0.09)	0.00	(0.03)	(0.85)	(0.97)	(0.09)	0.00	(0.03)	(0.64)	(0.76)
2018	(0.10)	0.00	(0.02)	(0.93)	(1.05)	(0.10)	0.00	(0.02)	(0.93)	(1.05)	(0.10)	0.00	(0.02)	(0.69)	(0.81)
2023	(0.12)	0.00	(0.04)	(0.79)	(0.95)	(0.12)	0.00	(0.04)	(0.79)	(0.95)	(0.12)	0.00	(0.04)	(0.59)	(0.75)
2028	(0.17)	0.00	(0.06)	(1.50)	(1.73)	(0.17)	0.00	(0.06)	(1.50)	(1.73)	(0.17)	0.00	(0.06)	(1.13)	(1.36)
2033	(0.19)	0.00	(0.08)	(2.17)	(2.44)	(0.19)	0.00	(0.08)	(2.17)	(2.44)	(0.19)	0.00	(0.08)	(1.62)	(1.89)
2038	(0.12)	0.00	(0.12)	(3.51)	(3.75)	(0.12)	0.00	(0.12)	(3.50)	(3.74)	(0.12)	0.00	(0.25)	(8.75)	(9.12)
2045	0.02	0.00	(0.28)	(9.75)	(10.01)	0.02	0.00	(0.28)	(9.75)	(10.01)	0.02	0.00	(0.28)	(9.75)	(10.01)
Total	(3.54)	0.00	(3.26)	(101.93)	(108.73)	(3.54)	0.00	(3.25)	(101.87)	(108.66)	(3.54)	0.00	(3.57)	(107.14)	(114.25)
June 30, 2012 Actuarial Accrued Liability					(9.26)		PUC=	(12.31)	EAN=	(9.26)		PUC=	(12.31)	EAN=	(9.26)

Breakdown of State Contribution Impact

A: Total state contributions required to achieve 90% funding in FY 2045 under Illinois Math are $207.94 billion. TRS would still have a shortfall (projected unfunded liability) at 2045 of $22.5 billion.

B: The change to Actuarial Math from Illinois Math results in earlier contributions and an increased asset value as of June 30, 2045. The total state contributions is $179.99 billion, a savings of $27.95 billion from Column A. More details on Side 2.

C: The change to Actuarial Math and the Pension Stabilization Fund (PSF) supplemental contributions result in earlier contributions, reducing state financing charges and state contributions by a total of $47.95 billion. This is $20.0 billion more savings than Column B. The total state contributions of $159.99 billion includes PSF supplemental contributions totaling $13.14 billion, so the $20.00 billion is the net savings.

D: The change to Actuarial Math, the PSF contributions, reducing future COLAs, changing the money purchase interest rates, delaying retirement, capping Tier I pensionable pay and reducing the Tier I member contribution rate result in reducing state contributions by a total of $101.93 billion. This is $53.98 billion in additional state contribution savings between Columns C and D due to benefit reductions partially offset by reduced member contributions. Refer to back of this poster for specific provisions.

E: The change to Actuarial Math, the PSF contributions, reducing future COLAs, changing the money purchase interest rates, delaying retirement, capping Tier I pay, reducing the Tier I member contribution rate and delaying EAN to FY 2016 reduces state contributions by a total of $101.87 billion. This is $0.06 billion less in state contribution savings between Columns D and E due to delaying EAN by one year.

F: The change to Actuarial Math, the PSF contributions, reducing future COLAs, changing the money purchase interest rates, delaying retirement, capping Tier I pay, reducing the Tier I member contribution rate, delaying EAN to FY 2016 and Add-On Payments reduces state contributions by a total of $107.14 billion. This is $5.27 billion more in state contribution savings between Columns E and F due to the Add-On payments.

Orientation to Exhibit

Column A is based on the results of the June 30 2012 Actuarial Valuation and reflects Illinois Pension Math of 90% funded by 2045.

Column B reflects Actuarial Math of 100% funded by the end of FY 2044 based *on the* entry age normal cost method and level percent of payroll funding.

Column C reflects PSF contributions being made in combination with Column B.

Column D reflects changing the COLA, delaying retirement, money purchase interest rates , capping Tier I pay and reducing Tier I member contribution rate in combination with the actuarial funding changes and PSF contributions in Columns B and C.

Column E reflects delaying EAN until FY2016, as well as the benefit changes and funding changes in Columns B, C and D.

Column F reflects adding supplemental payments of 25% of the difference between the baseline and the total contribution, as well as the benefit and funding changes in B, C , D and E. Other variations summarized on side 2.

The top half of the exhibit contains a projection of contributions and the actuarial accrued liability; the bottom half contains the *difference* from Column A in contributions and the actuarial accrued liability. Assumptions are those used for the June 30, 2012 actuarial valuation unless otherwise noted. ERO is assumed to continue so differences between baseline and scenarios can be seen.

Refer to Side 2 of this exhibit for important information regarding this analysis

buckconsultants

Teachers' Retirement System of the State of Illinois

Actuarial Request on behalf of Legislative Leaders submitted November 1, 2013 at 4:42pm with Threshold COLA indexed at Full CPI

Provisions Valued and Commentary

Prepared 11/29/2013

A	B	C	D	E	F
Current Law	Actuarial Math/Entry Age Normal	PSF Provisions (as Side Fund)	Benefit Provisions and Tier I Member Rate	Revise Funding Schedule	"Pure Add-On" Payments

A – Current Law

These results are based on liabilities used for funding purposes only. They do not reflect any changes under GASB 67 and 68, which will be effective for fiscal years beginning after June 15, 2013, and June 15, 2014, respectively. The changes made under the new GASB standards only affect liabilities used for financial statement accounting disclosure purposes.

Except where otherwise noted, the projections were based on the same plan provisions as were reflected in the June 30, 2012, actuarial valuation of the System. Buck Consultants has recommended that this analysis be performed based on the June 30, 2013 actuarial valuation of the System. The results of the June 30, 2013 valuation show that State contributions from FYE 2015 through FYE 2045 under Illinois Math decreased to $184.79 billion; under actuarial math on a PUC basis the contributions for the same period decreased to $171.70 billion. These amounts were presented to the Board on October 25, 2013. If this analysis were performed on the June 30, 2013 valuation, savings likely will be less than that shown above.

Larry Langer and Paul Wilkinson are Members of the American Academy of Actuaries, and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

Please contact us if you have any questions.

B – Actuarial Math/Entry Age Normal

Actuarial Math implemented:

- Entry age normal cost method
- Unfunded liability paid off as a level percent of payroll by FY 2044 to achieve 100% funding
- Funding rules effective FY 2015

Breakdown of State Contribution Impact: The change to Actuarial Math from Illinois Math results in earlier contributions, reduced state financing charges, and increased assets by 2045. Technically, state contribution savings are $27.95 billion. By switching to Entry Age Normal and funding to 100% by 2044, the market value of assets is projected to be $28.26 billion higher by 2045, increasing from $203.97 billion in the valuation to $232.23 billion for column B. Note that after the funded ratio reaches 100% in 2044, it is projected to exceed 100% in future years. The projected $232.23 in assets is actually higher than the 2045 liability of $231.27 billion, and more than eliminates the $22.5 billion shortfall in column A. The total financial benefit is $56.21 billion, the sum of the finance savings of $27.95 billion and the increased asset value of $28.26 billion. These are incidental increases from the earlier estimates of $54.77 billion total financial benefit and $26.82 billion increased asset value; finance savings estimate is unchanged.

C – PSF Provisions (as Side Fund)

Additional Contributions from Pension Stabilization Fund:

- Supplemental contributions of $364.7 million in FY 2019 and $1 billion in FY 2020 and each year thereafter until system is 100% funded; assume 61.49% goes to TRS
- PSF contributions are accumulated at 8% interest (same interest rate as TRS current valuation assumption)
- When the side fund balance reaches the TRS unfunded liability, the balance will be transferred to TRS and TRS will be 100% funded
- For Column C, which does not reflect the benefit and Tier I member rate provisions of this request, PSF contributions are projected to be made for FY 2019 through FY 2040 totaling $13.14 billion
- After the changes in Column D, which also apply to Column E, the PSF contributions are projected to be made FY 2019 through FY 2039, totaling $12.52 billion

D – Benefit Provisions and Tier I Member Rate

Tier 1 Active and Retiree COLA reduced: COLA Formula with threshold of $1,000 effective FY 2015 indexed at CPI times service credit; 3% COLA on current pension while pension is below the threshold, and on the threshold amount otherwise ; COLA delay: actives who are 50 or older get a 1 year delay, actives under 50 but at least 47 get a staggered 3 year delay, actives under 47 but at least 44 get a staggered 4 year delay, and actives under 44 get a staggered 5 year delay.

Cap on pensionable earnings: Cap on pensionable earnings same as Tier 2, with anyone already over grandfathered at the current salary.

Money Purchase Interest Rate changed: Interest rate is based on 30-year Treasury rate plus 75 basis points. Interest rate applies to crediting interest to money purchase balances, which is currently set at 6%, and to annuitization factors, which is currently set to the actuarial valuation interest rate of 8%. For this cost illustration, it has been assumed the proposed interest rate long-term will be 5%, based on the assumption the 30-year Treasury rates will increase slightly from their recent historical lows of 4% or less. A higher interest rate would produce less savings, and vice versa.

Tier 1 Member Contribution reduced: 7.5% portion of member rate reduced to 6.5%, total rate reduced from 9.4% to 8.4%, effective July 1, 2014.Reduction affects money purchase benefit.

E – Revise Funding Schedule

Delay to 2016:

- Delay adopting Entry Age Normal actuarial method to FY 2016.
- FY 2015 contribution will be based on current Projected Unit Credit method. This results in less state contribution for FY2015, but more later.
- Contributions for FY 2016 and later will be based on Entry Age Normal.
- When the funding method is changed from Projected Unit Credit to Entry Age Normal, the unfunded liability will increase by roughly $4 billion due to the change in the funding method.

F – "Pure Add-On" Payments

Add-On Payments:

- Supplemental add-on payments of 25% of the difference between the "Revised Funding Schedule" state contributions under "E" and the "Current Law" state contributions under "A" are accumulated along with the amounts in column C.
- Like the PSF contributions, these are accumulated at 8% interest (same interest rate as TRS current valuation assumption)
- When the side fund balance including these Add-On payments reaches the TRS unfunded liability, the balance will be transferred to TRS and TRS will be 100% funded, which is projected to be FY2036
- The Add-On payments are projected to be made FY 2016 through FY 2036, totaling $7.78 billion
- As a result of these Add-On payments, the PSF contributions are projected to end in FY2036, earlier than under Columns C, D and E, totaling $10.68 billion
- The PSF contributions and Add-On payments are projected to total $18.46 billion

Components contained in the Actuarial Request on behalf of Legislative Leaders:

1) Automatic Annual Increase calculation – For all Tier I active members, inactive members, and annuitants, the automatic annual increase going forward will be equal to 3% of $1,000 for members not coordinated with social security, $800 for members coordinated with social security, multiplied by the number of years of creditable service upon which the annuity is based. The $1,000 and $800 shall be increased each year by ½ of CPI starting in FY 2015. [This was updated from 1/2 of CPI to full CPI in a November 15 request] Members with an annuity of less than the amount equal to $1,000 for members not coordinated with social security, $800 for members coordinated with social security, multiplied by the number of years of creditable service upon which the annuity is based will continue to receive an automatic annual increase equal to 3% compounded each year until their annuity reaches such amount.

2) The staggered COLA delay for active members based on three year age bands is as follows:
· Ages 50 and over — 1 year delay
· Ages 47-49 — Staggered 3 year delay
· Ages 44-46 — Staggered 4 year delay
· Ages 43 and under — Staggered 5 year delay

3) Pay Cap for Tier 1 Active Members for Members Participating in the Defined Benefit Plan at the greater of salary at the effective date and the Tier 2 Pay Cap.

4) Retirement eligibility should be changed according to the following schedule:
· For those 46 and older, no increase in retirement age.
· For those 45 normal retirement age plus 3 months.
· For those 44 normal retirement age plus 6 months.
· For those 43 normal retirement age plus 9 months.
· For those 42 normal retirement age plus 12 months.
· For those 41 normal retirement age plus 15 months.
· For those 40 normal retirement age plus 18 months.
· For those 39 normal retirement age plus 21 months.
· For those 38 normal retirement age plus 24 months.
· For those 37 normal retirement age plus 27 months.
· For those 36 normal retirement age plus 30 months.
· For those 35 normal retirement age plus 33 months.
· For those 34 normal retirement age plus 36 months.
· For those 33 normal retirement age plus 39 months.
· For those 32 normal retirement age plus 42 months.
· For those 31 normal retirement age plus 45 months.
· For those 30 normal retirement age plus 48 months.
· For those 29 normal retirement age plus 51 months.
· For those 28 normal retirement age plus 54 months.
· For those 27 normal retirement age plus 57 months.
· For those under 26 normal retirement age plus 60 months.

5) 1% decrease in Tier 1 employee contributions.

6) Supplemental Contributions beginning in FY 19 as in Conference Committee proposal, not to be counted towards assets of the system until 100% funded, or 2045.

7) Effective Rate of Interest and Regular Interest equal to interest on 30-year US Treasury Bonds in a given fiscal year plus 75 basis points (per Conference Committee proposal).

8) Funding plan is normal cost plus an amount to amortize UAL as a level percent of pay (100% in 30 years) implementing Entry Age Normal actuarial calculations beginning FY 2016.

9) Additional supplemental payments: Include the provision in which SURS [the System] receives the "pure add-on" payments (future certified contributions do not reflect inclusion of such payments until the system is 100% funded), but in addition, a 2nd "pure add-on" payment is made which will be equal to 25% of the difference between the baseline and the total contribution (column) produced resulting from all the components of this request beginning in FY 2016. Preference is for this component to be added last, as to extrapolate the savings specific to this component more easily.

Observations on the Proposal:

- Buck Consultants has been instructed to base this analysis on the results of the June 30, 2012 valuation. Buck Consultants recommends that the June 30, 2013 valuation be used to get a more precise estimate of the funded status and contribution requirements of TRS.
- The Components to the left are from the email requesting this analysis.. While this analysis may provide some insight into the potential financial impact of this proposal, Buck Consultants strongly recommends that no action be taken on this analysis until final language is reviewed and evaluated by Buck Consultants.
- The cap on pensionable earnings is indexed at half of CPI. Indexing the pensionable pay cap at half of CPI does make it more likely that at some point in the future that TRS will no longer meet the requirements for FICA tax exemption. Indexing this cap at half of CPI generates savings in the short term. That being said, future policy makers will likely find it necessary to update this cap to full CPI indexation to meet the requirements of FICA tax exemption and to keep pace with reasonable benefits practice. We recommend the use of full indexation.
- The current COLA does a reasonable job of keeping pace with inflation. The current Tier 1 COLA accounts for 25% of the active liability and 22% of the retiree liability. By definition, the proposed COLA will not keep up with inflation. It will remove about 40% of the COLA liability.
- The proposed staggering of the skipped COLA increases is less harmful to members than one continuous period with no increases, but with somewhat less savings to the State.
- Since the proposed skipping of COLA increases applies to actives and not current retirees, there could be a rush for actives to retire; however, proposing only a one year skip for active members currently eligible to retire should mitigate the rush to retire.
- The cost of the money purchase benefit is interest rate sensitive, so using an indexed interest rate will produce cost savings when interest rates are low and cost increases when rates are high. This cost study assumes the 30-year Treasury rate plus 75 basis points will be 5%, which is lower than the current rates and will produce cost savings. A higher interest rate will produce less savings or cost increases if the rate exceeds the current rates.
- The money purchase benefit is a floor benefit that for TRS accounts for about 2-3% of active liability. It applies only to pre-July 1, 2005 members. Most of those members are not currently impacted by money purchase. Any reduction to the money purchase benefit will not impact the majority of the members and will have minimal cost savings. Conversely, any increase in the money purchase benefit will increase the benefits of those already impacted as well as some of the majority that was not already impacted. Thus, the cost savings of any decreases in the money purchase benefit will not be significant.
- If the intent of using the 30-year Treasury rate for the money purchase benefit is to reduce benefits and cost, consider simply using a fixed rate or applying a ceiling on the rates that is lower than the current rates. Using a fixed rate, as opposed to a variable rate like the proposed 30-year Treasury rate plus 75 basis points, provides better predictability of benefit amounts and cost. Consider also that while the 30-year Treasury rates have recently been at historic lows, they could rise. Rates have exceeded 12%. If rates rise, cost savings could be replaced with cost increases.
- Buck Consultants understands that the intent of delaying the implementation of Entry Age Normal to 2016 is to maximize the amount of liability reduction as a result of the proposed reduction in benefits. Buck recommends that this implementation not be delayed. We have provided liabilities on both an entry age and projected unit credit basis so that policy makers can show savings on a consistent basis.
- The "Pure Add-On" payments under item 9 of the request will require running parallel valuations each year to determine contribution requirements. Buck Consultants suggests that a simpler solution be sought to provide for additional funding.

Calculation of Incremental Increases (Decreases) to State Contributions ($ billions)

Column	32-Year Total 2014-2045	3-Year Total 2014-2016
B) Actuarial Math/Entry Age Normal	$ 179.99	$ 11.61
Current Law	207.94	10.67
Increase (Decrease)	(27.95)	0.94
C) PSF Provisions (as Side Fund)	$ 159.99	$ 11.61
Actuarial Math/Entry Age Normal	179.99	11.61
Increase (Decrease)	(20.00)	0.00
D) Benefit Provisions and Tier I Member Rate	$ 106.01	$ 9.20
PSF Provisions (as Side Fund)	159.99	11.61
Increase (Decrease)	(53.98)	(2.41)
E) Revise Funding Schedule	$ 106.07	$ 9.16
Benefit Provisions and Tier I Member Rate	106.01	9.20
Increase (Decrease)	0.06	(0.04)
F) "Pure Add-On" Payments	$ 100.80	$ 9.35
Revise Funding Schedule	106.07	9.16
Increase (Decrease)	(5.27)	0.19
Total Increase (Decrease) State Contributions	$ (107.14)	$ (1.32)

Future actuarial measurements may differ significantly from current measurements due to plan experience differing from that anticipated by the economic and demographic assumptions, increases or decreases expected as part of the natural operation of the methodology used for these measurements, and changes in plan provisions or applicable law. Because of limited scope, Buck performed no analysis of the potential range of such future differences.

Refer to Side 1 of this exhibit for important information regarding this analysis

buckconsultants