ACTUARIAL HODGEPODGE

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Post 4/1/12 Retirements

- Member in 1990's for approximately 8 years
  - Withdrew funds
- Re-established membership in May, 2012
- Purchased prior service
- Retired July 2014

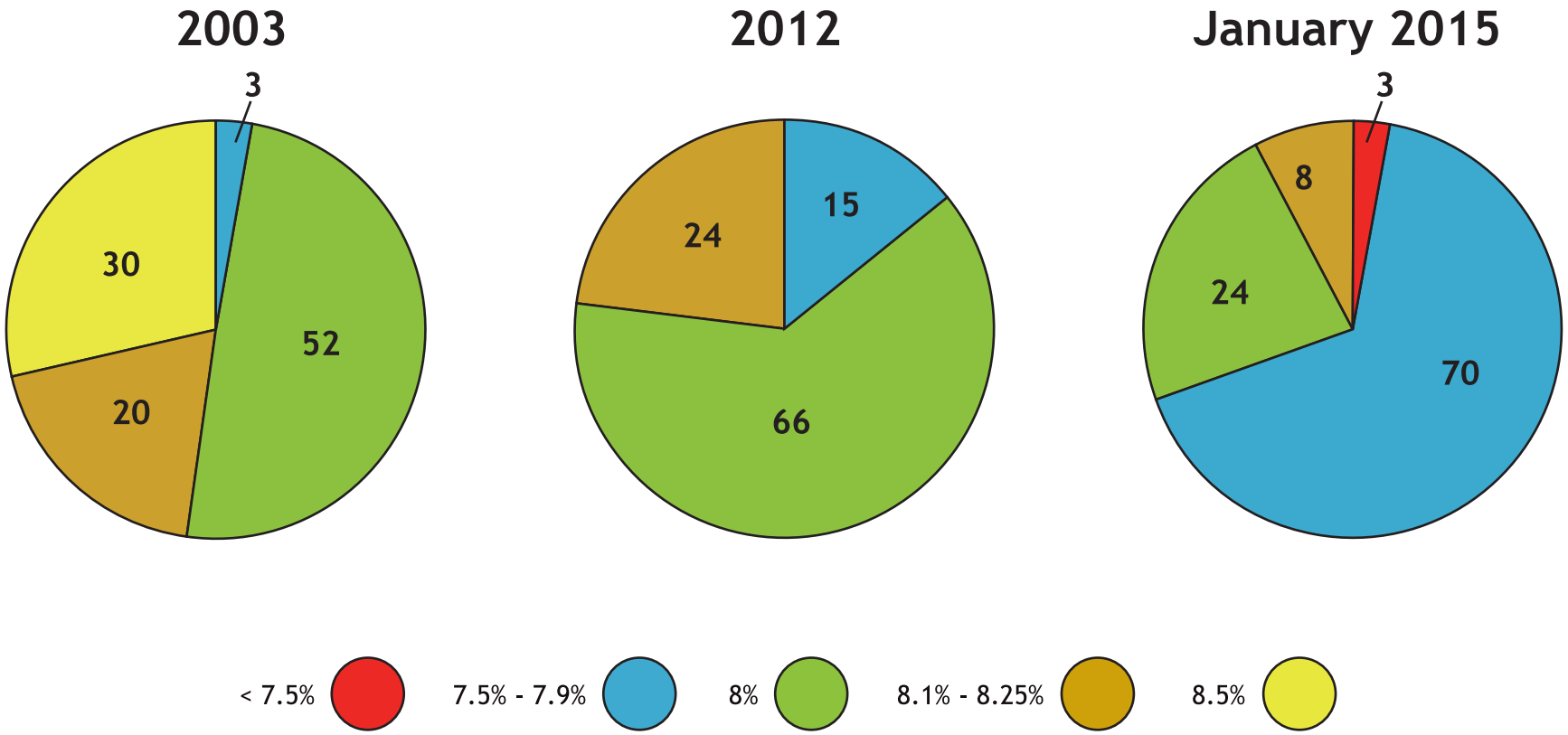
Mortality

- Began using RP-2000 in 2001 valuations
- 2010 Actuarial Standard of Practice
  - mortality improvement considered for valuations after 7/1/11
- 2011 valuations - RP-2000 projected 10 years with Scale AA
- Extended improvement scale in our 2012, 2013 and 2014 valuations
  - 2014 valuations- actives projected 22 years, retirees 17 years

Mortality *(continued)*

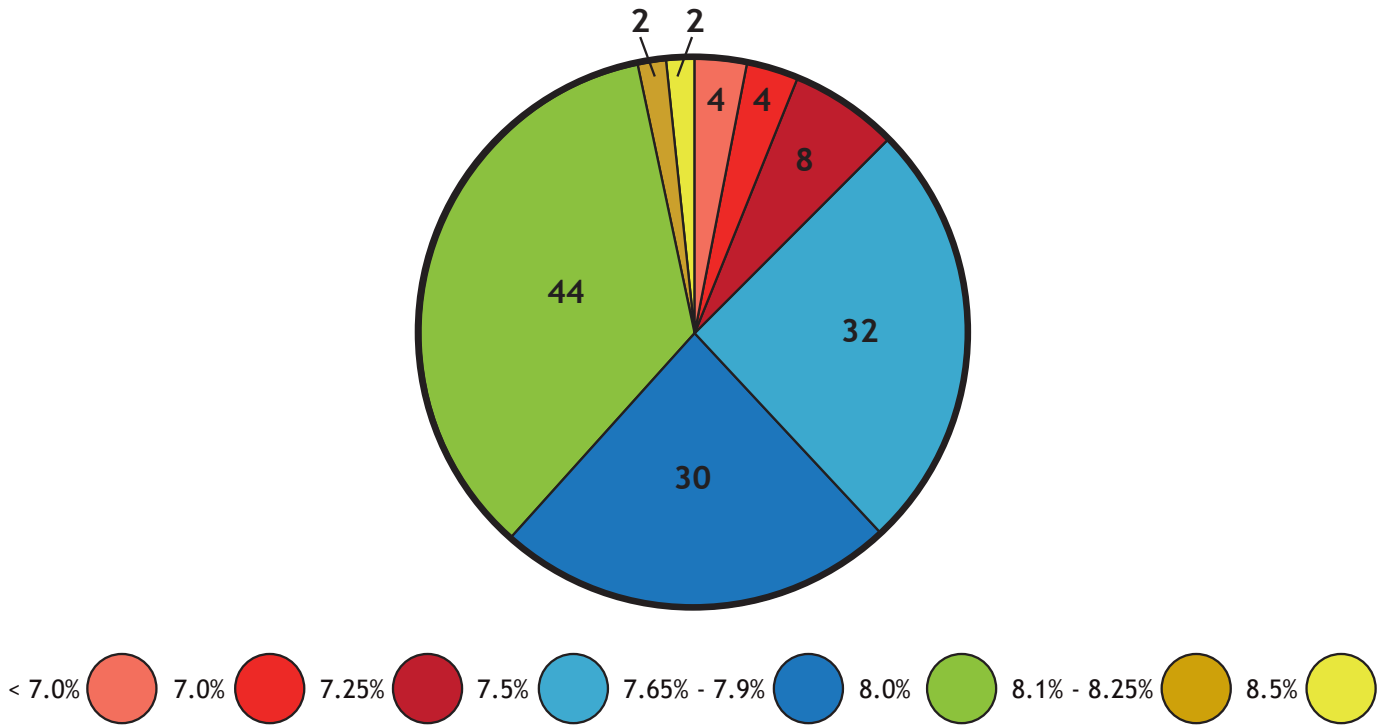
- New mortality table published in 2014
  - RP-2014
  - Limited experience relating to public plans
- Assumption in 2015???

Investment Return Assumptions



Investment Return Assumptions *(continued)*

National State, Teacher, and City Plans



Source: NASRA Public Fund Survey of 126 Large Plans, October 2014

Plan Sustainability

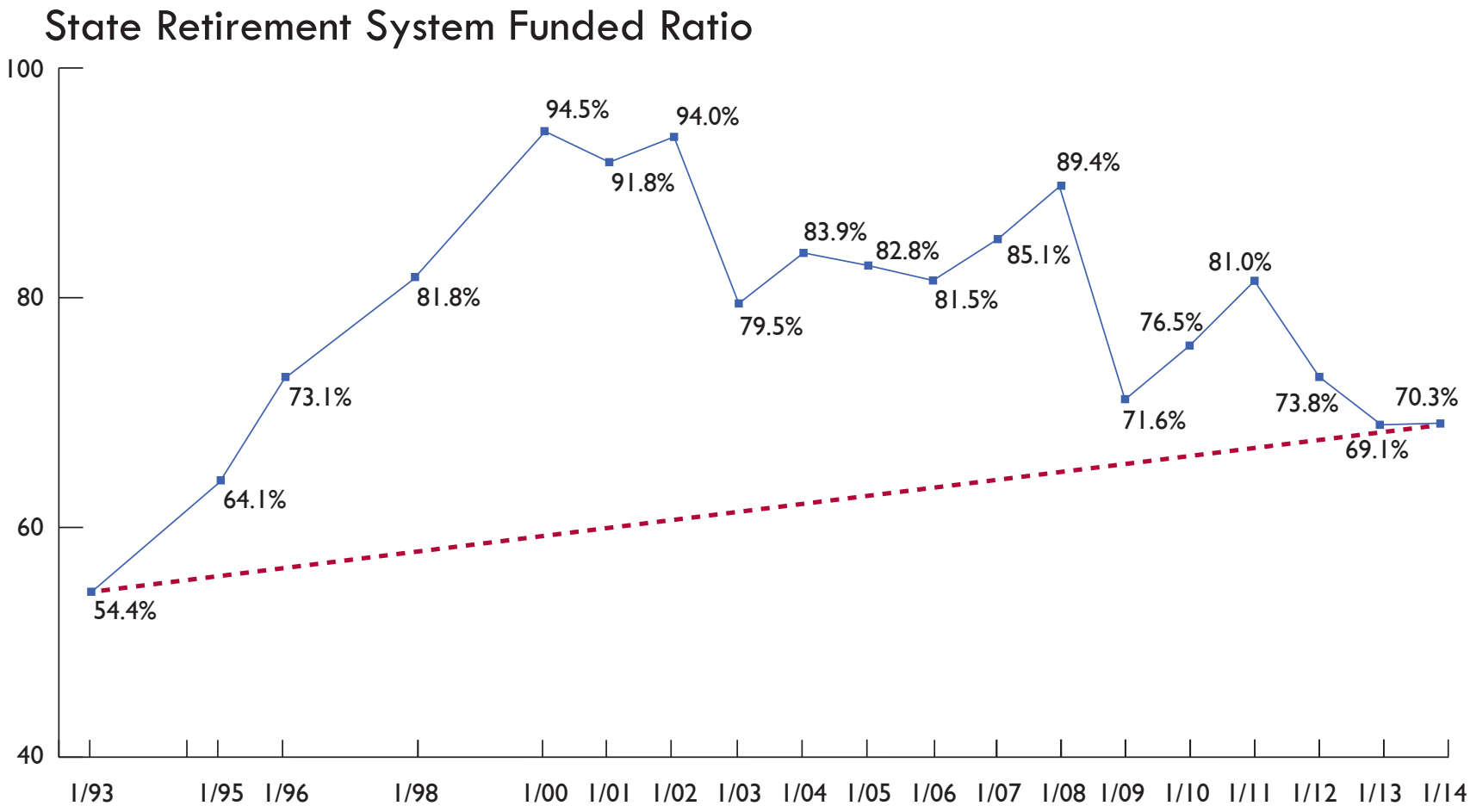
Employee's Share

- If:
  - Group 1 member
  - Hired after 7/1/96
  - Long-term employee
  - Retire under superannuation
  - Investment return assumption met
- Then:
  - Employee paying most, if not all, of benefit

Plan Sustainability *(continued)*

- Why is there an unfunded liability?
  - Pay-as-you-go for 40+ years
    - Actuarial funding began in early 1990's
  - Funding progress substantial (but gradual)
    - 1988 ➔ over 80% of systems 25% - 45%
    - 2014 ➔ over 80% of systems 40% - 70%

Plan Sustainability *(continued)*



Plan Sustainability *(continued)*

- "Too Much Too Soon"
  - Almost 100% funded 1/1/00
    - PRIT 1985-1999 13.6% average return
  - Regress to the mean (2000-2014)

Plan Sustainability *(continued)*

- Defined benefit vs. defined contribution
  - Defined benefit more efficient
  - Employer normal cost typically 3% - 6% of pay
    - Group 1 typically 1% - 3% of pay
  - Total normal cost typically 12% - 15% of pay
    - Group 1 typically 10% - 12% of pay

2008 Investment Loss

- Unprecedented for pension funding
- Now fully recognized
  - Pain in each valuation 2009 to 2014 for most systems
- 2009 - take 10 years to recover
  - Assets may be back to 2008 levels
  - But actuarial liability has increased each year

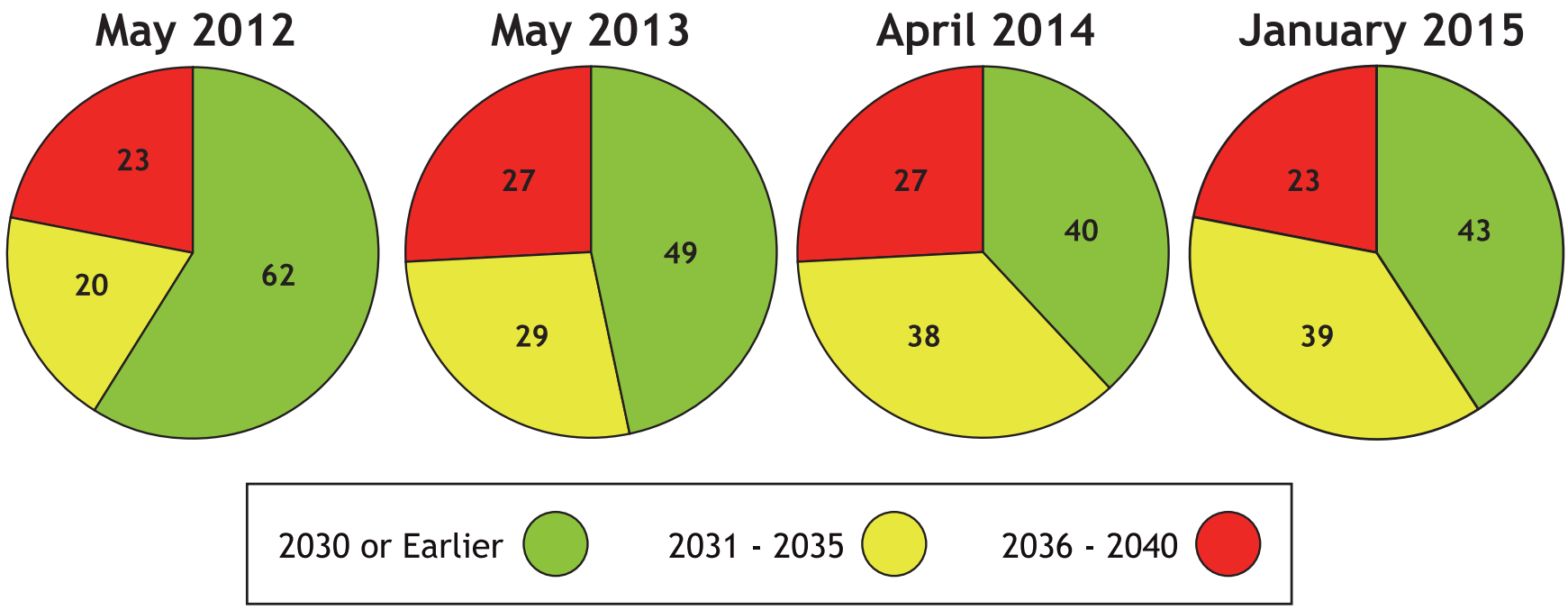
Funding Schedule Strategies

- PERAC local valuation process
- View 2-3 year schedule as 5 years
- 2012 valuation - schedule adopted effective FY13
  - FY13 same as prior schedule
- 2014 valuation - FY15 same as 2012 schedule
  - FY16 and FY17 - attempt to be comparable to 2012 schedule

Funding Schedule Strategies *(continued)*

- Amortize unfunded liability by FY35
- Provide flexibility in case of another downturn

Funding Schedules Adopted



Increase in Total Appropriation

- Ramp up/ phase-in
- 67 use this approach
  - 46 for entire length of schedule
  - 21 use phase-in schedule

Funding Schedule Alternatives

- Alternative 1- same amortization basis as current schedule
  - If decrease, we don't show
  - Instead would decrease number of years
- Alternative 2- extend years so amounts are comparable to current schedule
  - If not necessary to extend, adjust years and/or increasing basis
- Alternative 3- total appropriation increases x% per year
  - Percentage varies from 4.5% to 10%

Actuarial Funding Policies and Practices for Public Pension Plans

- October, 2014 white paper guidance*
  - Cost Method
  - Asset Smoothing Method
  - Amortization Policy
  - Actuarial Assumptions (outside scope of project)

* Conference of Consulting Actuaries Public Plans Community

Actuarial Funding Policies and Practices for Public Pension Plans *(continued)*

- Level Cost Allocation Model (LCAM) practices
- Acceptable
- Acceptable with conditions
- Non-recommended
- Unacceptable

Actuarial Funding Policies and Practices for Public Pension Plans *(continued)*

- ✔ Cost Method- Entry Age level percent of pay
- ✔ Asset Smoothing- 5 year smoothing, corridor usually 90%/110%
  - Market value acceptable
- Amortization Policy - not an automatic check for many systems

Actuarial Funding Policies and Practices for Public Pension Plans *(continued)*

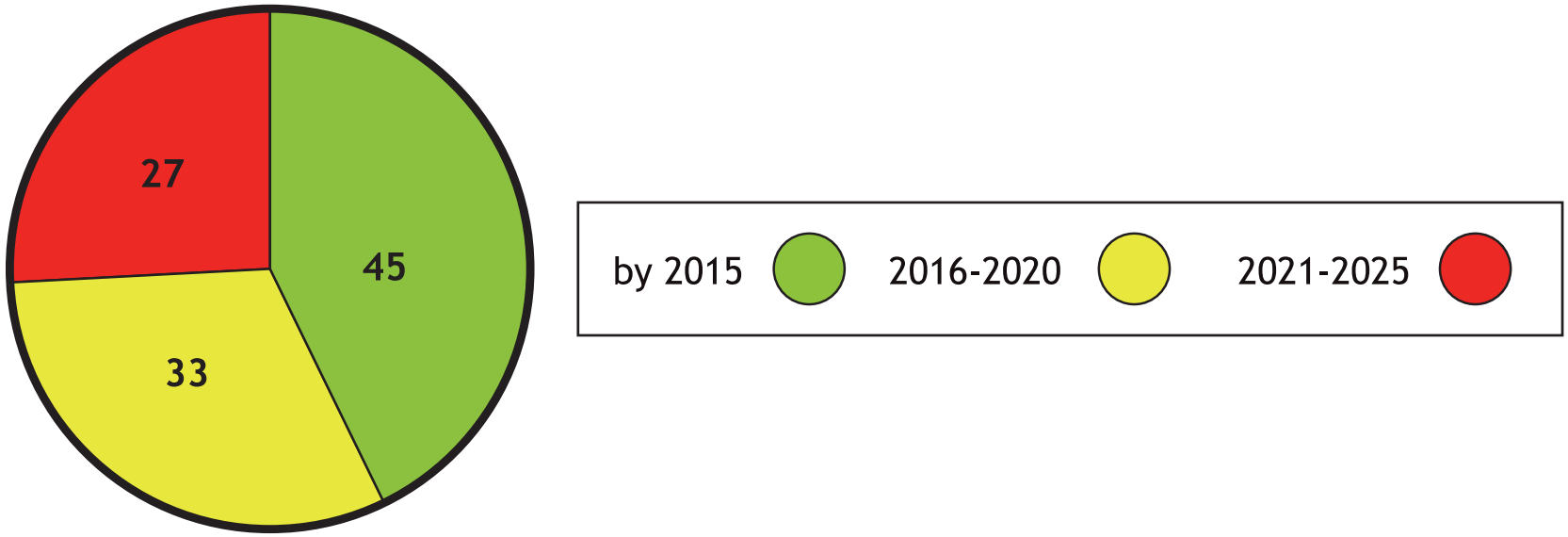
- LCAM Amortization Policy - level percent of pay layered approach
  - Amendments 10-15 years
  - Experience gains/loss 15-20 years
  - Assumption changes 15-25 years
  - ERIs 5 years

Actuarial Funding Policies and Practices for Public Pension Plans *(continued)*

- Current "average" result - 15-20 years??
  - Approximates FY35 goal
- Non recommended fixed amortization 26-30 years
- Unacceptable fixed amortization over 30 years
- But limiting **negative amortization** important!
  - Level and duration

Negative Amortization in Current Funding Schedules

- Unfunded actuarial liability begins decreasing



*26 Systems estimated, projected Unfunded Actuarial Liability not provided

Stress Testing

- Measure financial health of systems
  - Valuation work – typically look at 1-2 years
- Stress test projections
  - 5 years alternative investment return projections
  - Ability to adjust liability components
    - Normal cost, benefit payments

COLA Base Increases

- Rough rule of thumb
  - .5% increase in actuarial liability (AL) and total normal cost per $1,000 of increase
- Increase base from $12,000 to $14,000
  - 1.0% increase in AL

COLA Base Increases *(continued)*

- But, UAL % increases by more than 1% (assets the same)
- Likewise employer normal cost (NC)
- 1% increase in AL and NC- generally 2% to 4% increase in appropriation

  (Assumes same schedule)

COLA Base Increases *(continued)*

How to Pay?

- Recommended - increase appropriation to reflect cost increase
  - Don't bury your head in the sand
- Most systems have instead extended the schedule by a year or two
  - Not recommended- cost shifted to end of schedule

Option C Factors

Life Insurance Analogy – the Logic

- Electing Option C is like buying life insurance
- Insurance costs more the older you are
- Reduction from Option A to Option C can be thought of as the "premium"
- Higher Premium → Lower Option C benefit → Lower Option C factor

Option C Factors *(continued)*

The Mathematics Behind the Factors

- Simplifying Assumptions
  1) Everyone dies at age 80
  2) No Interest
  3) Option A benefit = $12,000
  4) Beneficiary receives **same** benefit as member upon member's death
- All 3 options are actuarially equivalent
  - Have same Present Value

Option C Factors *(continued)*

The Mathematics Behind the Factors			
Member Age/ Beneficiary Age	**PVB**	**C Benefit**	**C Factor**
79/78	$12,000	$6,000	.5000
78/77	$24,000	$8,000	.6667
77/76	$36,000	$9,000	.7500
76/75	$48,000	$9,600	.8000

GASB 67 and GASB 68

- Accounting standards
- Funding not impacted
- GASB 67 - plan
- GASB 68 - employer

GASB 67 and GASB 68 *(continued)*

Dates and Timing

- **Reporting Date** – fiscal year end (plan or employer)
- **Measurement Date**
  - **Plan:** fiscal year end
  - **Employer:** no earlier than end of prior fiscal year
- **Valuation Date**
  - **Plan:** no more than 24 months earlier than fiscal year end
  - **Employer:** no more than 30 months earlier than fiscal year end

GASB 67 and GASB 68 *(continued)*

Local System Effective Dates

Plan Year	12/31
Fiscal Year	6/30
First Plan Year Effective	12/31/14
First Employer Year Effective	6/30/15

GASB 67 and GASB 68 *(continued)*

Employer Dates

Reporting Date	6/30/15
Measurement Date • Allowable Period • Most Practical	 6/30/14 - 6/30/15 12/31/14
Valuation Date • Allowable Period • Most Practical	 12/31/12 – 6/30/15 1/1/13 or 1/1/14

GASB 67 and GASB 68 *(continued)*

Plan Dates

Reporting Date	12/31/14
Measurement Date	12/31/14
Valuation Date	
• Allowable Period	12/31/12 - 12/31/14
• Most Practical	1/1/13 or 1/1/14

GASB 45

- Other post-employment benefits (OPEB)
  - Primarily retiree medical
- Chapter 68 of Acts of 2011
  - PERAC charged with summarizing valuation results
  - Letters requesting valuations- 2011, 2012
  - Please send valuations when completed!