



# Advanced Tools for Managing CalPERS Pension Costs and UAL

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# Universal Pension Funding Equation

# Universal Funding Equation

$$C + I = B + E$$

Contributions + Investment Income = Benefits + Expenses

# Universal Funding Equation

## Implications

- Money coming into CalPERS will ultimately equal money going out
- Long-term contribution requirements are mostly determined by the level of promised benefits – not CalPERS or actuarial assumptions
- Greater/lesser investment returns result in lesser/greater contributions
- Contributions coming in earlier than required generally result in increased investment returns which lower future contributions



Consider Objectives and  
Strategies

# Objectives

- Vary from agency to agency
- May vary over time even for a given agency
- Formal funding policy may be helpful in achieving stated objectives
- CalPERS main objective is ensuring the security of promised benefits
  - Annual required minimum employer contributions reflect CalPERS objectives

# Examples of Objectives

- Reduce employer contributions in the long run
- Limit year to year contribution volatility
- Remove ramp effect from losses
- Achieve a target funded status by a certain date
- Increase flexibility regarding the payment of the minimum required contribution in a given future year
- Alter near-term pattern of required minimum contributions
- Understand the potential impact of various future scenarios on projected actuarial results

# Employer Strategies

- Additional Discretionary Payments (ADPs)
- Pension Obligation Bonds (POBs)
- California Employers' Pension Prefunding Trust (CEPPT)
- Fresh start of Unfunded Accrued Liability (UAL)
- Other changes to existing UAL schedule
- CalPERS tools and actuaries can help



# Managing Employer Contributions Tool (MEC)

# CalPERS Sample Plan

## Sample UAL Schedule (from valuation report)

Earlier layers excluded in order to fit on slide

Reason for Base	Date Est.	Ramp Level 2023-24	Ramp Shape	Escalation Rate	Amort. Period	Balance 6/30/21	Expected Payment 2021-22	Balance 6/30/22	Expected Payment 2022-23	Balance 6/30/23	Minimum Required Payment 2023-24
(Gain)/Loss	6/30/18	80%	Up/Down	2.80%	27	(18,764,325)	(498,787)	(19,524,832)	(768,756)	(20,058,057)	(1,023,425)
Assumption Change	6/30/18	80%	Up/Down	2.80%	17	67,598,946	2,465,024	69,648,218	3,799,218	70,458,030	5,101,913
Investment (Gain)/Loss	6/30/19	60%	Up Only	0.00%	18	8,485,907	185,536	8,871,208	371,071	9,090,970	546,609
Non-Investment (Gain)/Loss	6/30/19	No Ramp		0.00%	18	2,149,818	196,178	2,093,267	196,177	2,032,872	192,740
Investment (Gain)/Loss	6/30/20	40%	Up Only	0.00%	19	40,873,971	0	43,653,401	956,224	45,633,631	1,875,872
Non-Investment (Gain)/Loss	6/30/20	No Ramp		0.00%	19	(5,671,888)	0	(6,057,576)	(553,808)	(5,897,163)	(543,852)
Assumption Change	6/30/21	No Ramp		0.00%	20	10,727,159	(1,676,345)	13,189,009	(1,723,283)	15,866,773	1,426,797
Net Investment (Gain)	6/30/21	20%	Up Only	0.00%	20	(195,041,195)	0	(208,303,996)	0	(222,468,668)	(4,781,896)
Non-Investment (Gain)/Loss	6/30/21	No Ramp		0.00%	20	(4,961,867)	0	(5,299,274)	0	(5,659,625)	(508,934)
Risk Mitigation	6/30/21	No Ramp		0.00%	1	57,072,761	(2,767,918)	63,814,188	(2,845,420)	71,094,126	73,471,574
Risk Mitigation Offset	6/30/21	No Ramp		0.00%	1	(62,329,152)	0	(66,567,534)	0	(71,094,126)	(73,471,574)
<b>Total</b>						<b>349,878,439</b>	<b>35,058,612</b>	<b>337,439,173</b>	<b>40,189,304</b>	<b>318,851,768</b>	<b>43,832,501</b>

# CalPERS Sample Plan

Projected Contributions (from valuation report)

	Required Contribution	Projected Future Employer Contributions (Assumes 6.80% Return for Fiscal Year 2021-22 and Beyond)				
Fiscal Year	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29
Normal Cost %	9.23%	9.1%	9.0%	8.9%	8.8%	8.7%
UAL Payment	\$43,832,501	\$42,940,000	\$35,592,000	\$33,437,000	\$30,012,000	\$31,349,000
<i>Total as a % of Payroll*</i>	<i>19.87%</i>	<i>19.2%</i>	<i>17.2%</i>	<i>16.3%</i>	<i>15.3%</i>	<i>15.3%</i>
<i>Projected Payroll</i>	<i>\$411,984,733</i>	<i>\$423,520,306</i>	<i>\$435,378,874</i>	<i>\$447,569,483</i>	<i>\$460,101,429</i>	<i>\$472,984,269</i>

# Scenario 1 – Additional Discretionary Payment

		22-23 ADP Amount					
\$	483,927,278	\$	-	Total Payments	\$ 483,927,278	\$	-
\$	165,075,510	22 - 23 Payment Date		Interest Paid	\$ 165,075,510		
		1/6/2023	Total Savings		\$ -		
		Total ADP		Schedule with ADP		Contribution Difference	
Mid-Year Payment		(Valued Mid-year )		BOY Balance	Mid-Year Payment		
\$	35,058,612		\$	349,878,439	\$ 35,058,612		
\$	40,189,304	\$ -	\$	337,439,173	\$ 40,189,304	\$	-
\$	43,832,501	\$ -	\$	318,851,768	\$ 43,832,501	\$	-
\$	42,940,432	\$ -	\$	295,235,389	\$ 42,940,432	\$	-
\$	35,592,474	\$ -	\$	270,934,998	\$ 35,592,474	\$	-
\$	33,436,748	\$ -	\$	252,575,864	\$ 33,436,748	\$	-
\$	30,011,964	\$ -	\$	235,196,119	\$ 30,011,964	\$	-
\$	31,349,076	\$ -	\$	220,173,867	\$ 31,349,076	\$	-
\$	32,723,630	\$ -	\$	202,748,276	\$ 32,723,630	\$	-
\$	34,136,664	\$ -	\$	182,717,221	\$ 34,136,664	\$	-
\$	33,423,032	\$ -	\$	159,863,769	\$ 33,423,032	\$	-
\$	32,819,348	\$ -	\$	136,193,778	\$ 32,819,348	\$	-
\$	28,687,666	\$ -	\$	111,538,098	\$ 28,687,666	\$	-
\$	26,927,786	\$ -	\$	89,475,684	\$ 26,927,786	\$	-
\$	23,681,320	\$ -	\$	67,731,756	\$ 23,681,320	\$	-
\$	17,774,982	\$ -	\$	47,864,272	\$ 17,774,982	\$	-
\$	13,843,229	\$ -	\$	32,749,650	\$ 13,843,229	\$	-
\$	9,663,442	\$ -	\$	20,670,468	\$ 9,663,442	\$	-
\$	6,267,243	\$ -	\$	12,089,464	\$ 6,267,243	\$	-
\$	4,211,125	\$ -	\$	6,434,722	\$ 4,211,125	\$	-
\$	2,604,616	\$ -	\$	2,520,334	\$ 2,604,616	\$	-
\$	-	\$ -	\$	-	\$ -	\$	-
\$	-	\$ -	\$	-	\$ -	\$	-
\$	-	\$ -	\$	-	\$ -	\$	-
\$	-	\$ -	\$	-	\$ -	\$	-
\$	-	\$ -	\$	-	\$ -	\$	-



# Scenario 1 – Additional Discretionary Payment

		22-23 ADP Amount			
\$ 483,927,278	\$ 30,000,000	Total Payments	\$ 453,200,515	\$ (30,726,764)	
\$ 165,075,510	22 - 23 Payment Date	Interest Paid	\$ 134,348,747		
	1/6/2023	Total Savings	\$ 30,726,764		
	Total ADP	Schedule with ADP		Contribution	
Mid-Year Payment	(Valued Mid-year )	BOY Balance	Mid-Year Payment	Difference	
\$ 35,058,612		\$ 349,878,439	\$ 35,058,612		
\$ 40,189,304	\$ 29,958,827	\$ 337,439,173	\$ 40,189,304	\$ 30,000,000	
\$ 43,832,501	\$ -	\$ 287,891,093	\$ 41,781,189	\$ (2,051,312)	
\$ 42,940,432	\$ -	\$ 264,289,300	\$ 40,830,415	\$ (2,110,017)	
\$ 35,592,474	\$ -	\$ 240,065,153	\$ 33,423,375	\$ (2,169,099)	
\$ 33,436,748	\$ -	\$ 221,848,502	\$ 31,206,916	\$ (2,229,832)	
\$ 30,011,964	\$ -	\$ 204,683,698	\$ 27,719,696	\$ (2,292,268)	
\$ 31,349,076	\$ -	\$ 189,955,523	\$ 28,992,625	\$ (2,356,451)	
\$ 32,723,630	\$ -	\$ 172,910,335	\$ 30,301,198	\$ (2,422,432)	
\$ 34,136,664	\$ -	\$ 153,353,742	\$ 31,646,404	\$ (2,490,260)	
\$ 33,423,032	\$ -	\$ 131,077,110	\$ 30,863,044	\$ (2,559,988)	
\$ 32,819,348	\$ -	\$ 108,095,223	\$ 30,187,681	\$ (2,631,667)	
\$ 28,687,666	\$ -	\$ 84,248,515	\$ 25,982,312	\$ (2,705,354)	
\$ 26,927,786	\$ -	\$ 63,126,231	\$ 24,146,682	\$ (2,781,104)	
\$ 23,681,320	\$ -	\$ 42,464,647	\$ 20,822,345	\$ (2,858,975)	
\$ 17,774,982	\$ -	\$ 23,833,581	\$ 14,835,958	\$ (2,939,024)	
\$ 13,843,229	\$ -	\$ 10,122,179	\$ 10,460,673	\$ (3,382,556)	
\$ 9,663,442	\$ -	\$ -	\$ -	\$ (9,663,442)	
\$ 6,267,243	\$ -	\$ -	\$ -	\$ (6,267,243)	
\$ 4,211,125	\$ -	\$ -	\$ -	\$ (4,211,125)	
\$ 2,604,616	\$ -	\$ -	\$ -	\$ (2,604,616)	
\$ -	\$ -	\$ -	\$ -	\$ -	
\$ -	\$ -	\$ -	\$ -	\$ -	
\$ -	\$ -	\$ -	\$ -	\$ -	
\$ -	\$ -	\$ -	\$ -	\$ -	

## Scenario 2 – Fresh Start

- Employer Goals:
  - Create a level payment schedule
  - Realize savings
  - Shorten the period to paydown the UAL

# Scenario 2 – Fresh Start

\$ 483,927,278	<b>Fresh Start Period:</b>	11	Total Payments	\$ 448,098,553
\$ 165,075,510	<b>2022-23 ADP Amount:</b>	\$ -	Total Interest	\$ 129,246,785
	<b>2022-23 Payment Date:</b>	1/6/2023	<b>Total Savings</b>	<b>\$ 35,828,725</b>
	<b>11-Year Fresh Start Level \$</b>			
Mid-Year Payment	BOY Balance	Mid-Year Payment	Soft Fresh Start Payment	
\$ 35,058,612	\$ 349,878,439	\$ 35,058,612	\$ -	-
\$ 40,189,304	\$ 337,439,173	\$ 40,189,304	\$ -	-
\$ 43,832,501	\$ 318,851,768	\$ 40,736,232	\$ (3,096,269)	(3,096,269)
\$ 42,940,432	\$ 298,435,202	\$ 40,736,232	\$ (2,204,200)	(2,204,200)
\$ 35,592,474	\$ 276,630,309	\$ 40,736,232	\$ 5,143,758	5,143,758
\$ 33,436,748	\$ 253,342,683	\$ 40,736,232	\$ 7,299,484	7,299,484
\$ 30,011,964	\$ 228,471,499	\$ 40,736,232	\$ 10,724,268	10,724,268
\$ 31,349,076	\$ 201,909,074	\$ 40,736,232	\$ 9,387,156	9,387,156
\$ 32,723,630	\$ 173,540,405	\$ 40,736,232	\$ 8,012,602	8,012,602
\$ 34,136,664	\$ 143,242,666	\$ 40,736,232	\$ 6,599,568	6,599,568
\$ 33,423,032	\$ 110,884,681	\$ 40,736,232	\$ 7,313,200	7,313,200
\$ 32,819,348	\$ 76,326,353	\$ 40,736,232	\$ 7,916,884	7,916,884
\$ 28,687,666	\$ 39,418,059	\$ 40,736,233	\$ 12,048,567	12,048,567
\$ 26,927,786	\$ -	\$ -	\$ (26,927,786)	(26,927,786)
\$ 23,681,320	\$ -	\$ -	\$ (23,681,320)	(23,681,320)
\$ 17,774,982	\$ -	\$ -	\$ (17,774,982)	(17,774,982)
\$ 13,843,229	\$ -	\$ -	\$ (13,843,229)	(13,843,229)
\$ 9,663,442	\$ -	\$ -	\$ (9,663,442)	(9,663,442)
\$ 6,267,243	\$ -	\$ -	\$ (6,267,243)	(6,267,243)
\$ 4,211,125	\$ -	\$ -	\$ (4,211,125)	(4,211,125)
\$ 2,604,616	\$ -	\$ -	\$ (2,604,616)	(2,604,616)
\$ -	\$ -	\$ -	\$ -	-
\$ -	\$ -	\$ -	\$ -	-
\$ -	\$ -	\$ -	\$ -	-

# Scenario 3 – Target Funded Status

- Employer Goals:
  - Make level dollar ADPs for a specified period of time to reach a target funded status



# Scenario 3 – Target Funded Status

**Goal Seek**

Target Funded Ratio: 100.0%

Target Period: 14

22 - 23 Payment Date: 1/6/2023

ADP Amount Per year: \$ 3,941,005

Find ADP Amount

Total Payments	\$	452,980,790	\$	(30,946,488)	Funded Ratio 2021 val:
Interest Paid	\$	134,129,022			85.1%
<b>Total Savings</b>	<b>\$</b>	<b>30,946,488</b>			

Total ADP		Schedule with ADP		Contribution	Projected Funded
(Valued Mid-year )		BOY Balance	Mid-Year Payment	Difference	Ratio End of Year
		\$ 349,878,439	\$ 35,058,612		86.3%
\$ 3,935,596		\$ 337,439,173	\$ 40,189,304	\$ 3,941,005	87.9%
\$ 3,941,005		\$ 314,784,563	\$ 43,564,310	\$ 3,672,814	89.5%
\$ 3,941,005		\$ 287,095,980	\$ 42,385,719	\$ 3,386,292	91.0%
\$ 3,941,005		\$ 258,742,578	\$ 34,735,998	\$ 3,084,529	92.2%
\$ 3,941,005		\$ 236,366,679	\$ 32,260,679	\$ 2,764,935	93.3%
\$ 3,941,005		\$ 215,027,315	\$ 28,496,929	\$ 2,425,969	94.2%
\$ 3,941,005		\$ 196,126,487	\$ 29,473,950	\$ 2,065,879	95.1%
\$ 3,941,005		\$ 174,930,709	\$ 30,465,264	\$ 1,682,639	96.0%
\$ 3,941,005		\$ 151,269,153	\$ 31,469,567	\$ 1,273,908	96.9%
\$ 3,941,005		\$ 124,960,723	\$ 30,318,960	\$ 836,933	97.7%
\$ 3,941,005		\$ 98,052,405	\$ 29,246,792	\$ 368,448	98.4%
\$ 3,941,005		\$ 70,422,344	\$ 24,611,182	\$ (135,480)	99.0%
\$ 3,941,005		\$ 45,704,068	\$ 22,307,125	\$ (679,657)	99.6%
\$ 3,941,005		\$ 21,686,055	\$ 18,470,248	\$ (1,270,068)	100.0%
\$ -		\$ 3	\$ 3	\$ (17,774,979)	100.0%
\$ -		\$ -	\$ -	\$ (13,843,229)	100.0%
\$ -		\$ -	\$ -	\$ (9,663,442)	100.0%
\$ -		\$ -	\$ -	\$ (6,267,243)	100.0%
\$ -		\$ -	\$ -	\$ (4,211,125)	100.0%
\$ -		\$ -	\$ -	\$ (2,604,616)	100.0%
\$ -		\$ -	\$ -	\$ -	100.0%
\$ -		\$ -	\$ -	\$ -	100.0%

# Scenario 4 – Contribution Smoothing

- Employer Goals:
  - Contribute a level contribution over a selected number of years

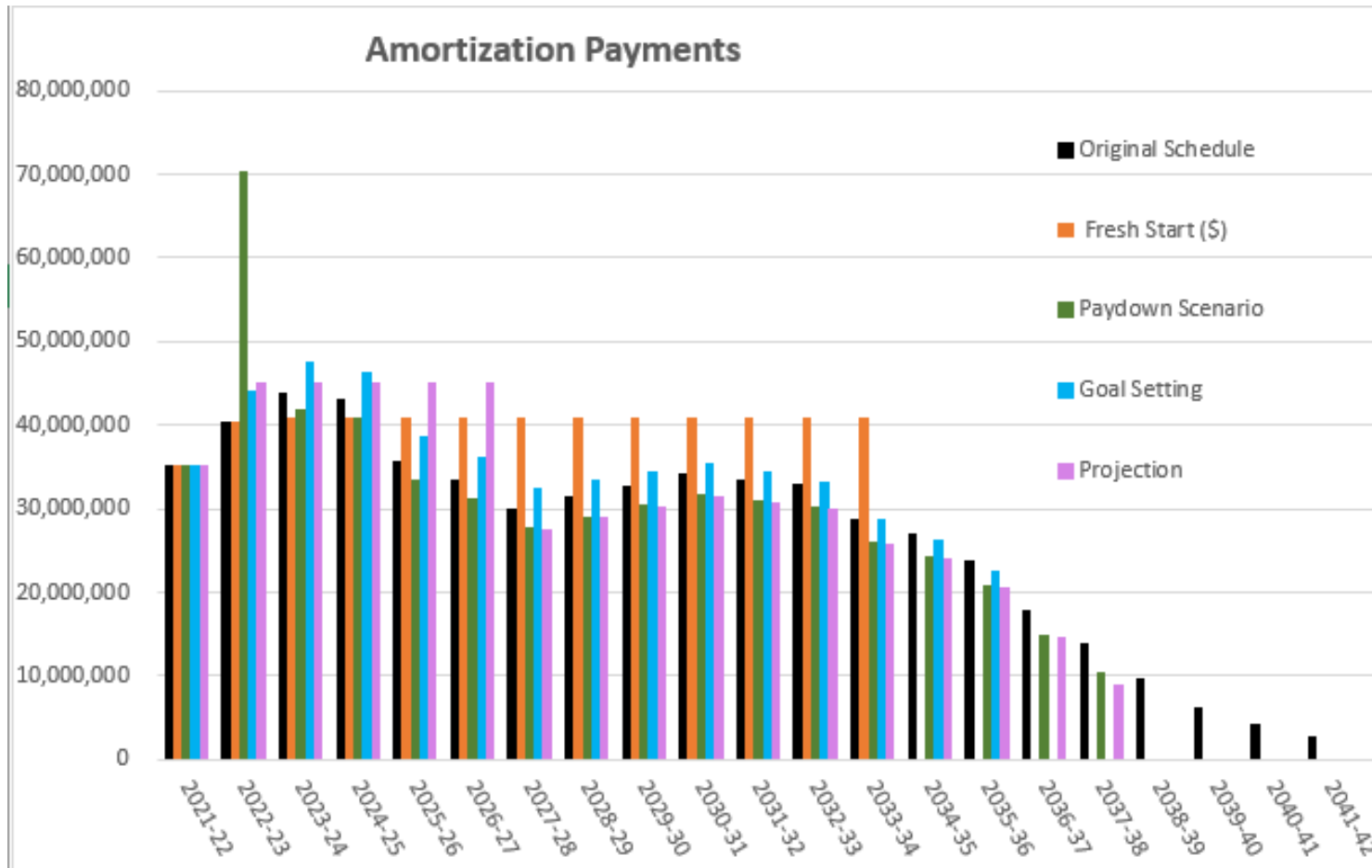
# Scenario 4 – Contribution Smoothing

Discount Rate:
6.80%
6.80%
6.80%
Risk Mitigation ON

Total Annual UAL Payment:	\$ 45,000,000
Start in Fiscal Year:	2022-23
Number of Years:	5
Annual Rate of Increase/(Decrease):	0.00%
Press to override ADP amounts:	Contribution Smoothing

		22-23 ADP Amount			
\$	483,926,501	\$	4,810,696	Total Payments	\$ 457,241,696
\$	165,074,501	22 - 23 Payment Date		Interest Paid	\$ 138,389,696
		1/6/2023	Total Savings	\$	26,684,805
Schedule		Total ADP			
Mid-Year Payment		(Valued Mid-year )	BOY Balance	Mid-Year Payment	
\$	35,058,612	\$	349,878,439	\$	35,058,612
\$	40,189,304	\$	337,439,000	\$	40,189,304
\$	43,832,501	\$	313,887,000	\$	43,504,800
\$	42,940,000	\$	288,727,000	\$	42,497,000
\$	35,592,000	\$	261,855,000	\$	34,955,000
\$	33,437,000	\$	233,157,000	\$	32,028,000
\$	30,012,000	\$	202,507,000	\$	27,556,000
\$	31,349,000	\$	187,800,000	\$	28,824,000
\$	32,724,000	\$	170,782,000	\$	30,128,000
\$	34,137,000	\$	151,259,000	\$	31,469,000
\$	33,423,000	\$	129,024,000	\$	30,680,000
\$	32,819,000	\$	106,091,000	\$	30,000,000
\$	28,688,000	\$	82,302,000	\$	25,789,000
\$	26,928,000	\$	61,247,000	\$	23,948,000
\$	23,681,000	\$	40,662,000	\$	20,618,000
\$	17,775,000	\$	22,120,000	\$	14,626,000
\$	13,843,000	\$	8,508,000	\$	8,793,000
\$	9,663,000	\$	-	\$	-

# Comparison of all Scenarios





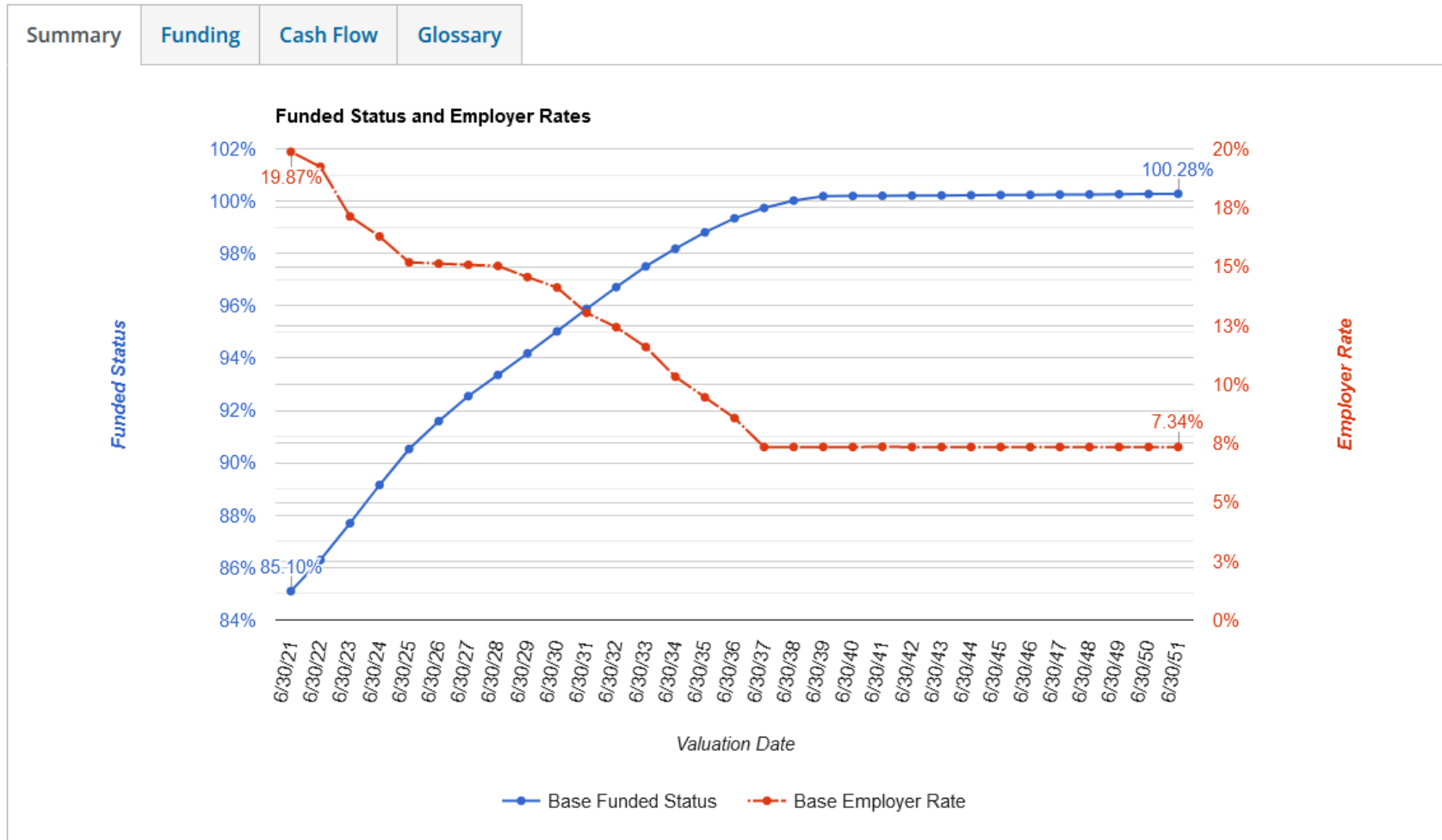
# Pension Outlook Tool

# Pension Outlook

- Registration/Log-in on CalPERS Website and User Manual
  - <https://www.calpers.ca.gov/page/employers/actuarial-resources/pension-outlook-overview/pension-outlook>
- Cost Projection Tool is Open to All Stakeholders
- Non-Pooled and Pooled Plans
- State and Schools plans
- Based on most recent valuation results at 6.30.21
- Can be used to model the actual investment return for FY 2021-22 of -7.5%

# Sample Plan 1

## Base Results



# Sample Plan 1

## Base Results

### Cost Over 30 Years (\$M)

Details	Amount
Baseline	<b>\$1,938.96</b>
Scenario	<b>\$1,938.96</b>
Change	<b>\$0.00</b>
Increase/ Decrease	<b>0.00%</b>

### Funded Status

Details	Percentage
Current at 06/30/2021	<b>85.10%</b>
Projected at 06/30/2022	<b>86.29%</b>
Lowest Funded Status	<b>85.10%</b>

### Future Funded Status

Date	Percentage
at 06/30/2025	<b>79.33%</b>
at 06/30/2027	<b>82.14%</b>
at 06/30/2032	<b>89.68%</b>

### Employer Rates

Details	Percentage
Current FY (at 06/30/2022)	<b>19.92%</b>
Projected for next FY (at 06/30/2023)	<b>19.87%</b>
Average Over 30 Years	<b>11.41%</b>
Increase Over Baseline Over 30 Years	<b>0.00%</b>
Maximum Over 30 Years	<b>19.92%</b>
Increase Over Baseline Over 30 Years	<b>0.00%</b>

### Plan Cost Diagnostics

Rate	Average
Average Rate Relative to Current Rate	<b>-42.72%</b>
Maximum Rate Relative to Current Rate	<b>0.00%</b>
Average Rate Relative to Baseline	<b>0.00%</b>
Maximum Rate Relative to Baseline	<b>0.00%</b>
Cost Over 30 Years Relative to Baseline	<b>0.00%</b>



# Sample Plan 1

## Modeling Assumptions

### Modeling Assumptions

#### Years to Project

- ☐ 10  
☐ 20  
☒ 30

#### Discount Rate % (required)

6.800

#### PEPRA

- ☒ Yes  
☐ No

#### PEPRA Transition Years

- ☐ 10  
☒ 15  
☐ 20

#### Additional Discretionary Payment

- ☐ Yes  
☒ No

#### Random Investment Scenario

- ☐ Yes  
☒ No

#### Rate % (required)

-7.5

6.800

6.800

6.800

6.800

#### Number of Years (required)

1

1

1

7

20

Submit

Reset Modeling Criteria

# Sample Plan 1

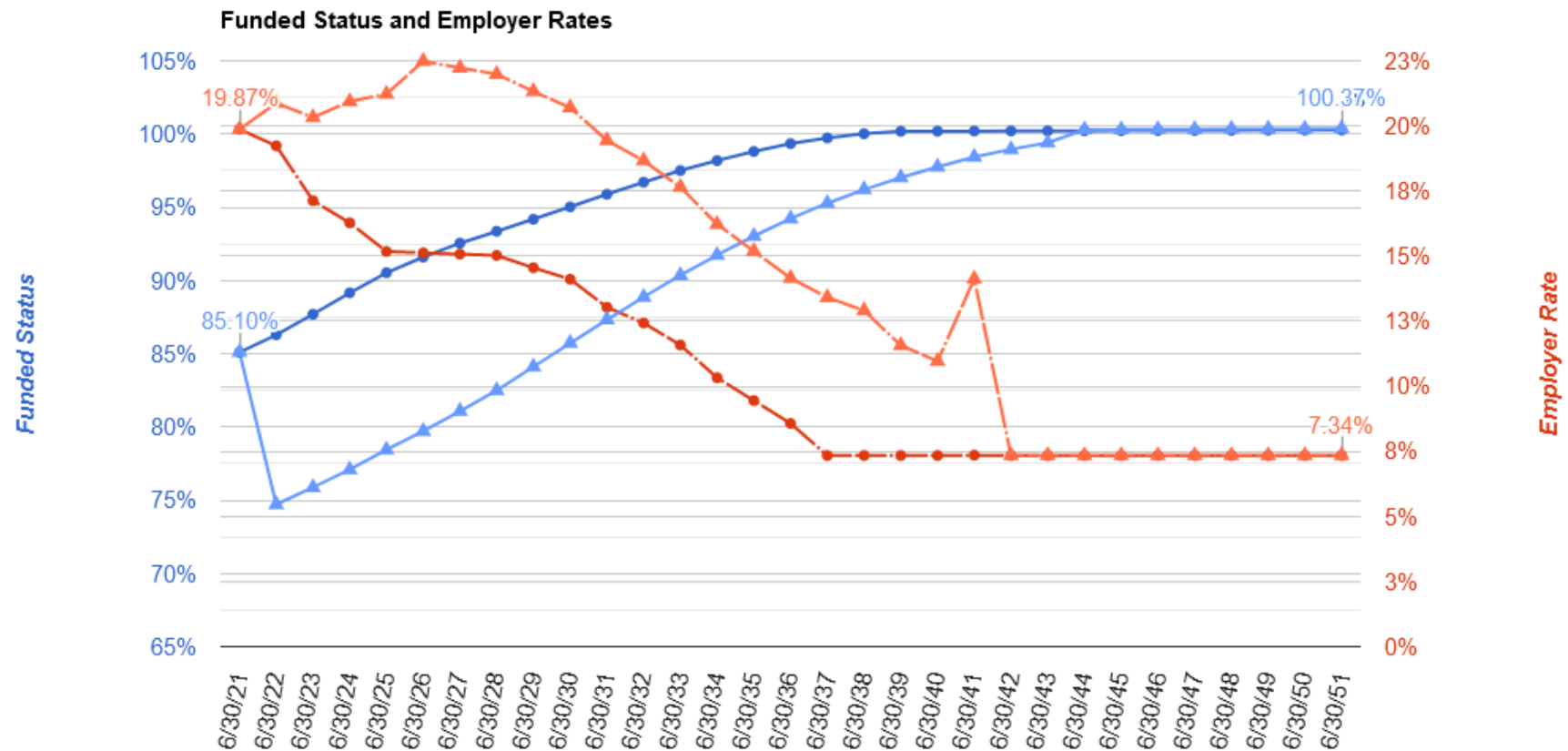
## Modified Results with -7.5% Return

Summary

Funding

Cash Flow

Glossary



# Sample Plan 1

## Modified Results with -7.5% Return

	A	B	C	D	E	F	G	H	I	J	K	L
1	Fiscal Year Cost (in \$M)											
2	161 - Miscellaneous Plan	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33
3	Payroll	\$400.76	\$411.98	\$423.52	\$435.38	\$447.57	\$460.10	\$472.98	\$486.23	\$499.84	\$513.84	\$528.23
4	Baseline											
5	Normal Cost	\$33.34	\$38.03	\$38.56	\$39.09	\$39.62	\$40.15	\$40.68	\$41.20	\$41.73	\$42.25	\$42.77
6	UAL Payment	\$44.76	\$43.83	\$42.90	\$35.48	\$33.23	\$29.68	\$30.86	\$32.10	\$33.37	\$32.52	\$31.78
7	Total Employer Cost	\$78.10	\$81.86	\$81.46	\$74.57	\$72.85	\$69.82	\$71.54	\$73.30	\$75.10	\$74.77	\$74.54
8	Total Employer Rate	19.92%	19.87%	19.23%	17.13%	16.28%	15.18%	15.12%	15.07%	15.02%	14.55%	14.11%
9	Scenario											
10	Normal Cost	\$33.34	\$38.03	\$38.56	\$39.09	\$39.62	\$40.15	\$40.68	\$41.20	\$41.73	\$42.25	\$42.77
11	UAL Payment	\$44.76	\$43.83	\$49.86	\$49.40	\$54.11	\$57.52	\$65.66	\$66.90	\$68.18	\$67.32	\$66.58
12	Total Employer Cost	\$78.10	\$81.86	\$88.42	\$88.49	\$93.73	\$97.67	\$106.34	\$108.10	\$109.90	\$109.57	\$109.34
13	Total Employer Rate	19.92%	19.87%	20.88%	20.32%	20.94%	21.23%	22.48%	22.23%	21.99%	21.32%	20.70%
14	Impact on Cost											
15	Total Employer Cost	\$0.00	\$0.00	\$6.96	\$13.92	\$20.88	\$27.84	\$34.80	\$34.80	\$34.80	\$34.80	\$34.80
16	Total Employer Rate	0.00%	0.00%	1.64%	3.20%	4.67%	6.05%	7.36%	7.16%	6.96%	6.77%	6.59%
17												
18	Baseline	6/30/2022	6/30/2023	6/30/2024	6/30/2025	6/30/2026	6/30/2027	6/30/2028	6/30/2029	6/30/2030	6/30/2031	6/30/2032
19	Accrued Liability	\$2,449.80	\$2,565.54	\$2,682.61	\$2,801.34	\$2,921.07	\$3,043.33	\$3,167.29	\$3,292.92	\$3,420.50	\$3,549.66	\$3,680.73
20	Market Value of Assets	\$2,113.93	\$2,249.78	\$2,391.72	\$2,536.08	\$2,675.53	\$2,816.56	\$2,956.93	\$3,101.34	\$3,250.28	\$3,403.62	\$3,559.66
21	UAL - Baseline	\$335.87	\$315.76	\$290.89	\$265.27	\$245.54	\$226.77	\$210.36	\$191.58	\$170.21	\$146.04	\$121.06
22	Funded Ratio	86.29%	87.69%	89.16%	90.53%	91.59%	92.55%	93.36%	94.18%	95.02%	95.89%	96.71%
23	Scenario											
24	Accrued Liability	\$2,449.80	\$2,565.54	\$2,682.61	\$2,801.34	\$2,921.07	\$3,043.33	\$3,167.29	\$3,292.92	\$3,420.50	\$3,549.66	\$3,680.73
25	Market Value of Assets	\$1,830.04	\$1,946.58	\$2,067.91	\$2,197.44	\$2,328.25	\$2,467.24	\$2,612.63	\$2,769.59	\$2,931.94	\$3,099.60	\$3,270.93
26	UAL - Scenario	\$619.76	\$618.95	\$614.71	\$603.91	\$592.82	\$576.09	\$554.66	\$523.33	\$488.55	\$450.06	\$409.79
27	Funded Ratio	74.70%	75.87%	77.09%	78.44%	79.71%	81.07%	82.49%	84.11%	85.72%	87.32%	88.87%
28												
29	Impact on UAL	\$283.89	\$303.20	\$323.81	\$338.64	\$347.28	\$349.32	\$344.30	\$331.75	\$318.34	\$304.02	\$288.73

# Sample Plan 1

## Modified Results with -7.5% Return and 6.5% Discount Rate

### Modeling Assumptions

#### Years to Project

- ☐ 10  
☐ 20  
☒ 30

#### Discount Rate % (required)

6.5

#### PEPRA

- ☒ Yes  
☐ No

#### PEPRA Transition Years

- ☐ 10  
☒ 15  
☐ 20

#### Additional Discretionary Payment

- ☐ Yes  
☒ No

#### Random Investment Scenario

- ☐ Yes  
☒ No

#### Rate % (required)

-7.5

6.5

6.5

6.5

6.5

#### Number of Years (required)

1

1

1

7

20

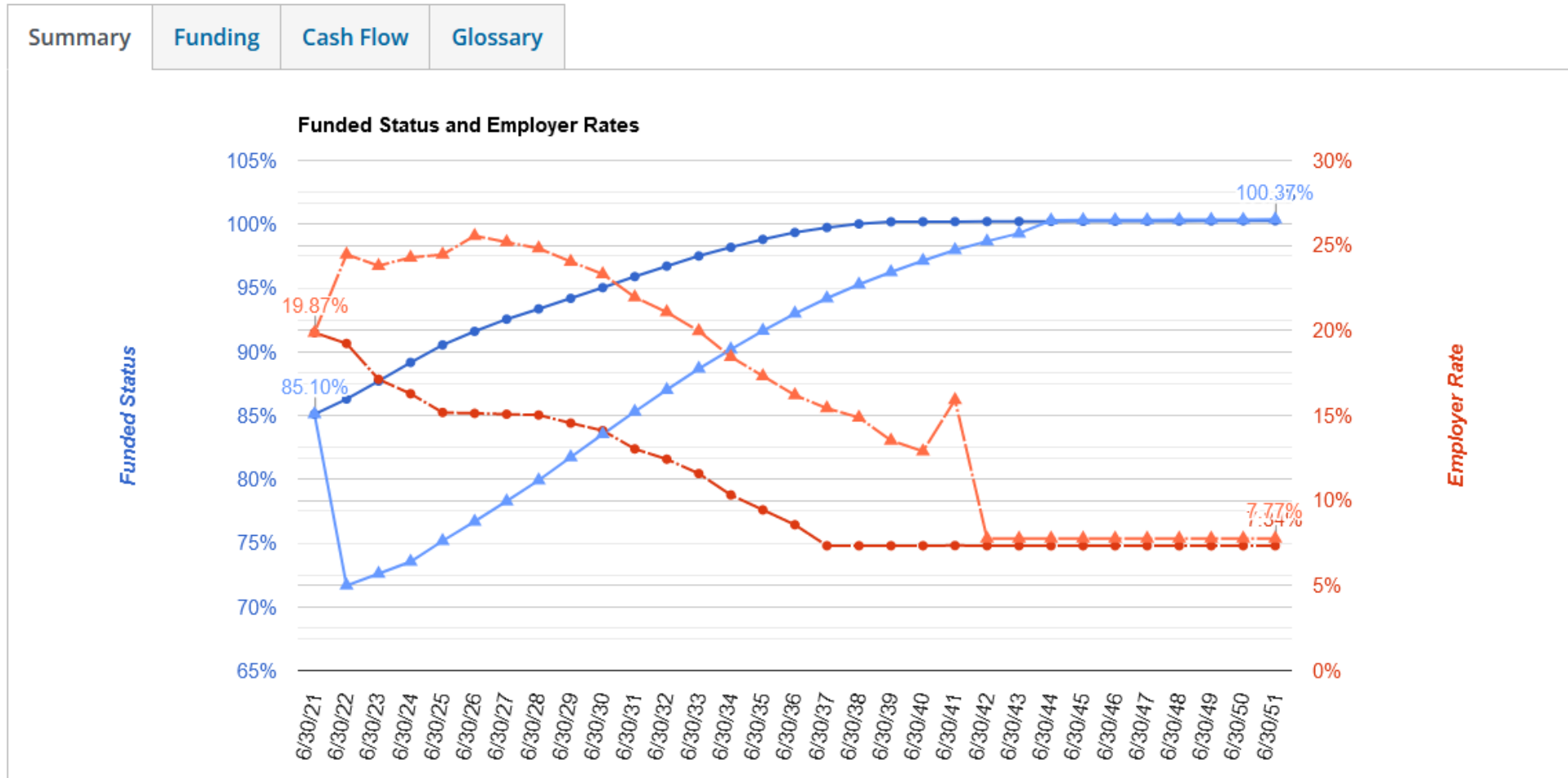
Submit

Reset Modeling Criteria



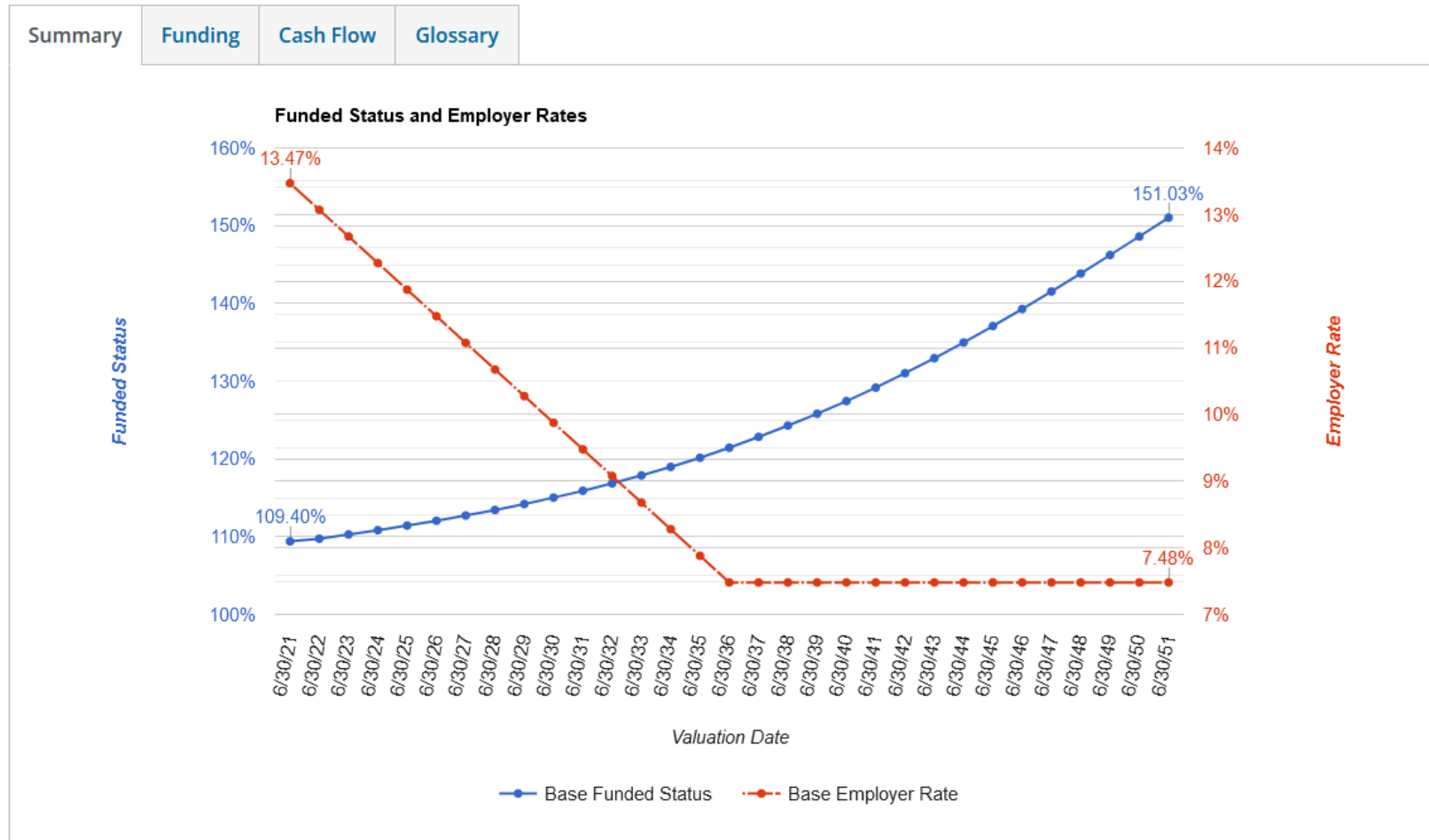
# Sample Plan 1

Modified Results with -7.5% Return and 6.5% Discount Rate



# Sample Plan 2 – Overfunded Plan as of 6/30/2021

## Base results



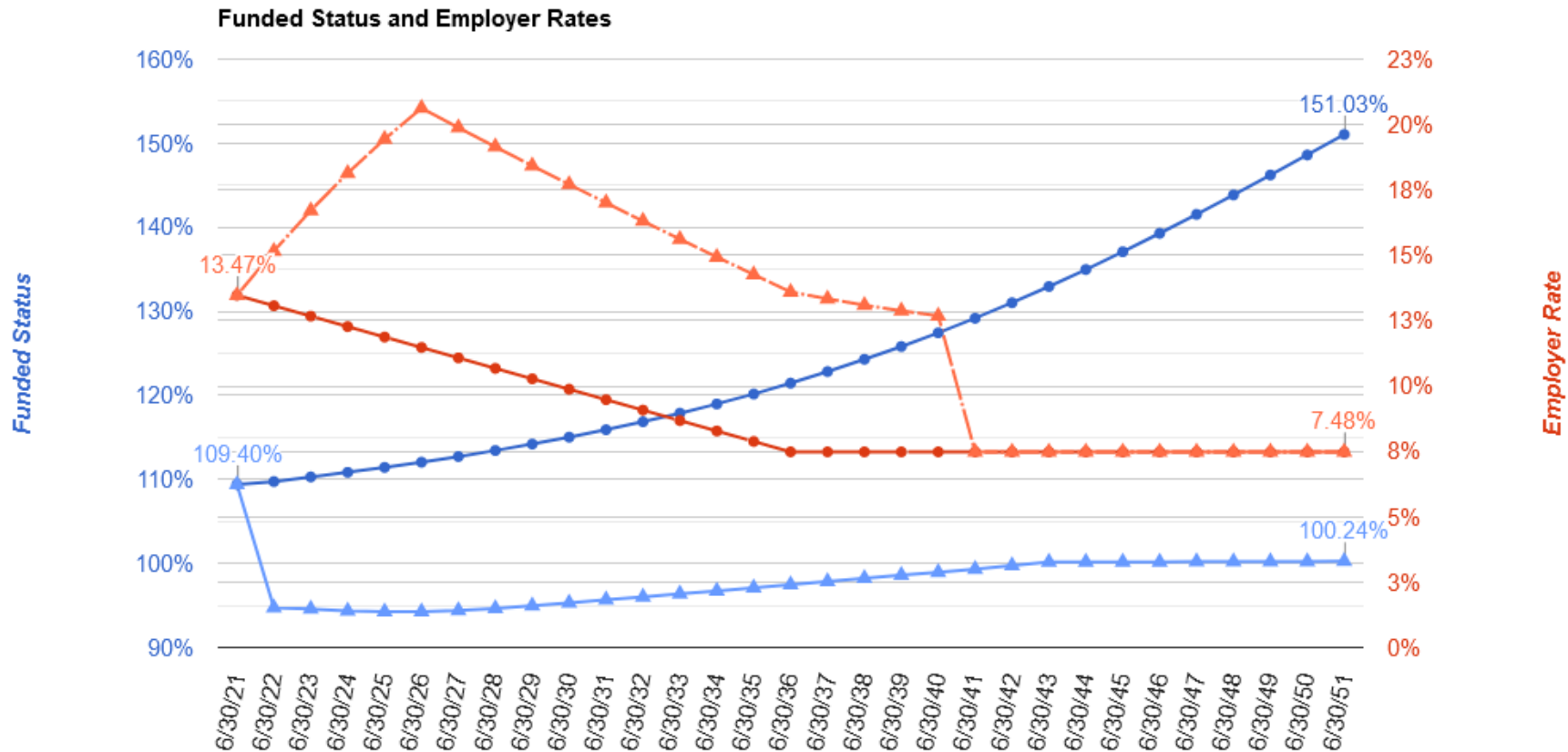
# Sample Plan 2 – Overfunded Plan as of 6/30/2021 Reflecting Actual 2021-22 Return of -7.5%

Summary

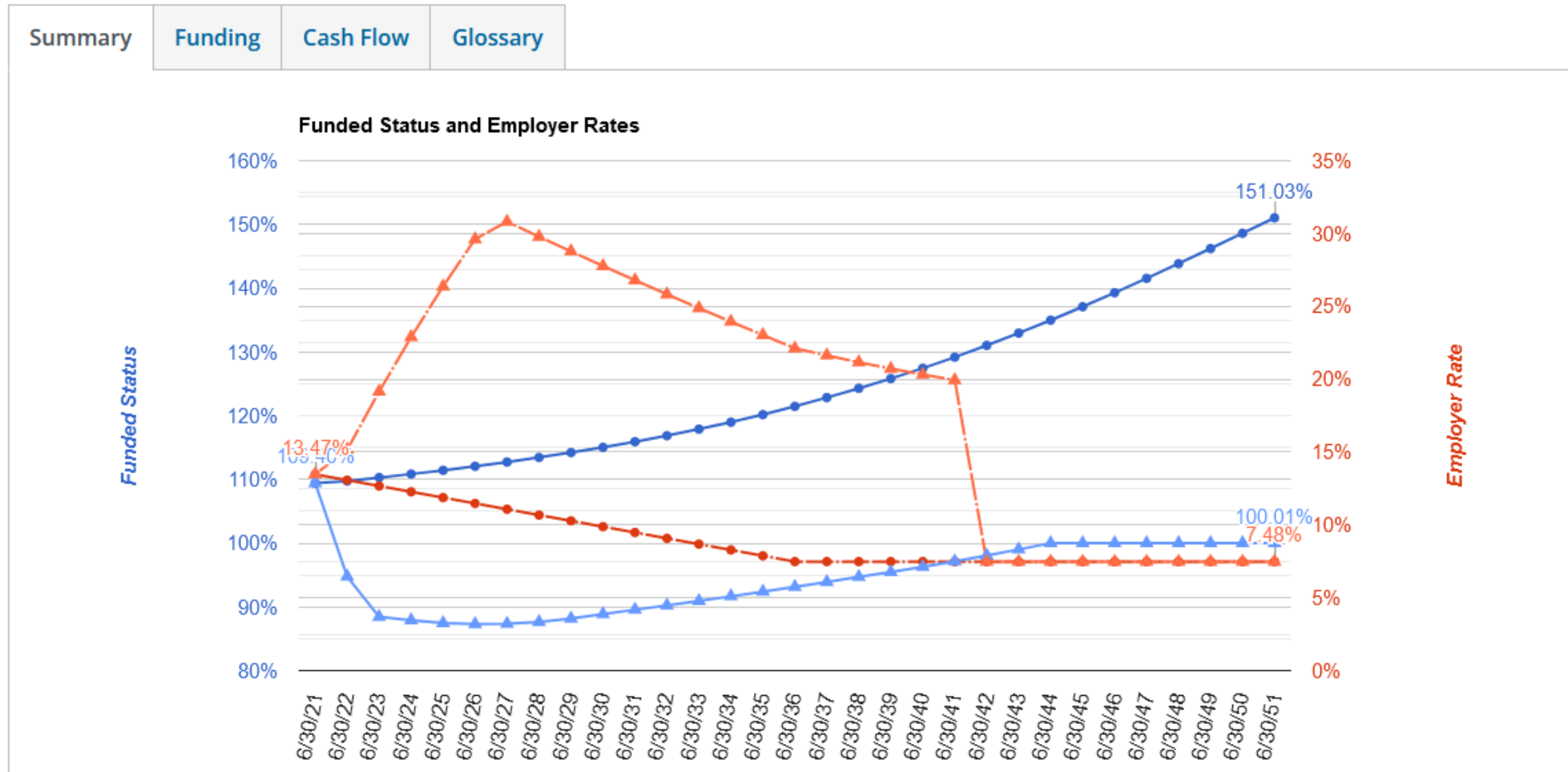
Funding

Cash Flow

Glossary



# Sample Plan 2 – Overfunded Plan as of 6/30/2021 Reflecting Actual 2021-22 Return of -7.5% and 0% for 2022-23





# Other Possible Scenarios to Model

## Model:

1. 6.8% Discount Rate with 6.0% Returns
2. 6.8% Discount Rate with 6% Returns for 5 years, 6.8% thereafter
3. Impact of paydown programs – extra \$X million paid for next 5 years
4. Volatile year to year investment returns
5. Many possible scenarios to be considered or budgeted for

# Appendix

# CalPERS Current Landscape

6/30/2022 PERF Funded Status (72% in total)

State Plan – 71%

PA Non-Pooled Plans – 73%

Schools Pool – 69%

PA Pooled Plans – 76%

# CalPERS Current Landscape

Actuarial Cost Method - determines how CalPERS sets required employer contributions

- Entry Age Normal Cost method which spreads projected total costs of members' benefits evenly over the working careers of the members (normal cost)
- If assets on a valuation date are less than the funding target on that date (accrued liability), the plan has unfunded accrued liability and an additional required contribution (on top of the normal cost)



# CalPERS Current Landscape

## Amortization of Unfunded Accrued Liability

- Unfunded Accrued Liability separated into layers based on how and when UAL was increased/decreased
- Layers added or deleted annually
- Most new layers are amortized over 20 years
- Layers due to investment gains/losses have a 5-year ramp within the 20-year amortization period