Welcome to the Employee Trust Funds Board

June 23, 2022

Meeting will begin at: 9:00 a.m.

WIFI

WI-GUEST

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- Who? All meeting attendees
- Sheet available at the door

http://

Meeting Materials

- Available at etf.wi.gov

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Announcements

Item 1 – Employee Trust Funds Board

Consideration of Minutes of

March 24, 2022 Open and Closed

Item 2 – Employee Trust Funds Board

Committee Reports

Item 3 – Employee Trust Funds Board

Executive Committee – Bill Ford

Audit Committee – Leilani Paul

Budget and Operations Committee – Roberta Rasmus

Wisconsin Retirement System 41st Annual Valuation of Active Lives and Gain/Loss Analysis

Item 4A – Employee Trust Funds Board

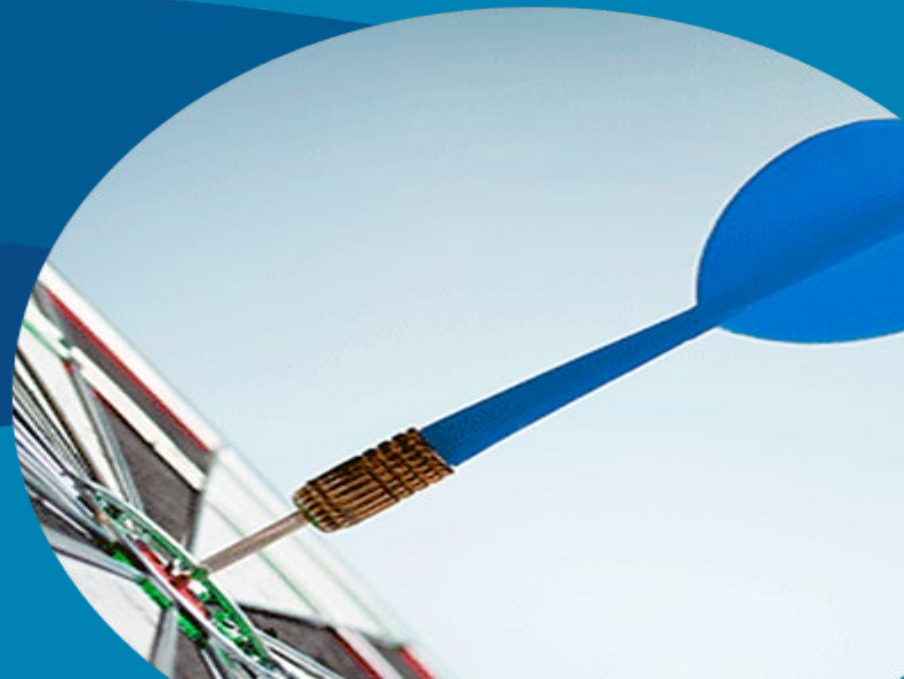
Gabriel Roeder Smith & Company
Brian Murphy, Senior Consultant
Jim Anderson, Senior Consultant
Mark Buis, Senior Consultant

etf

Wisconsin Retirement System

41st Annual Actuarial Valuation as of December 31, 2021 and Gain/Loss Analysis

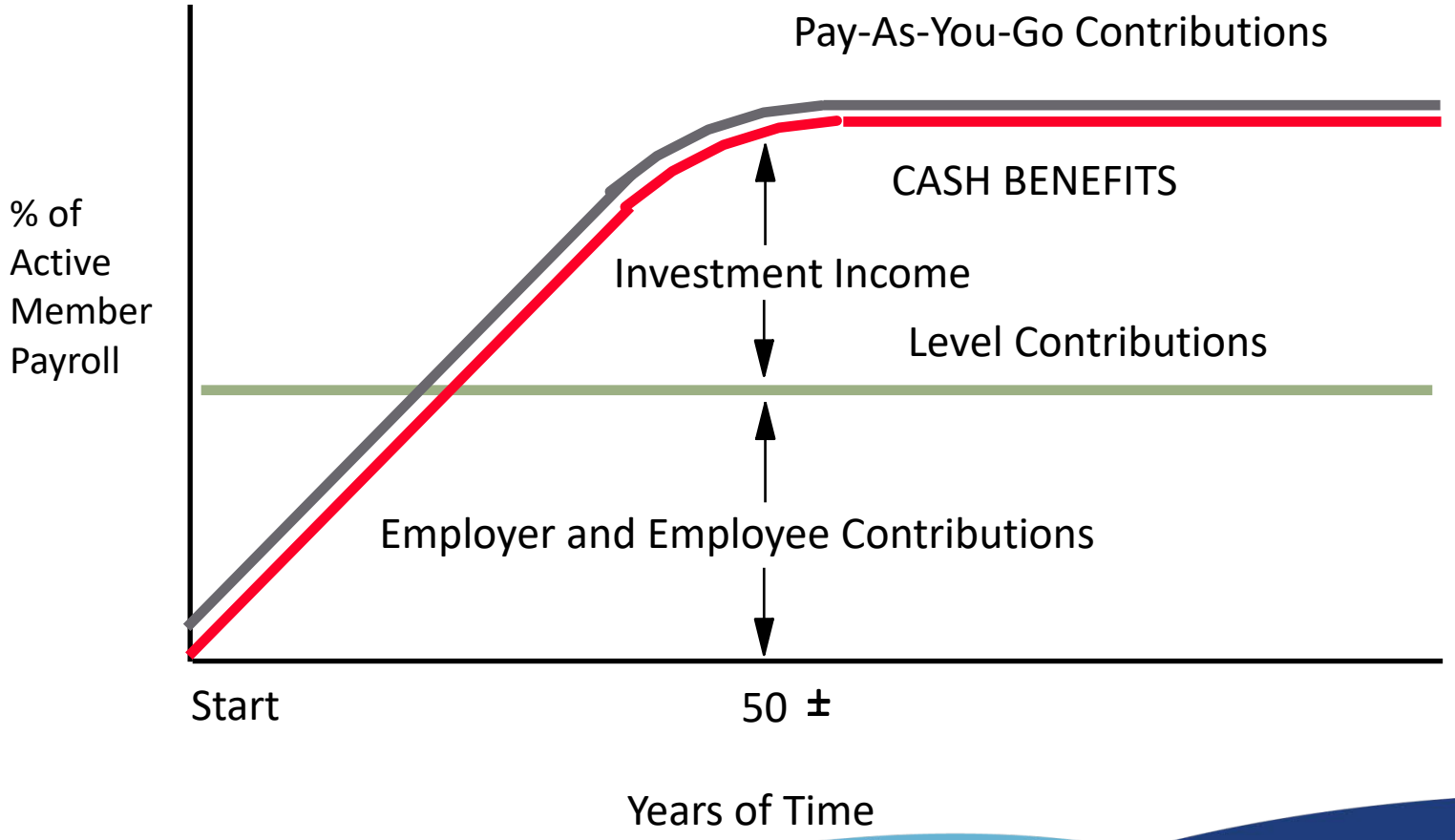
June 2022



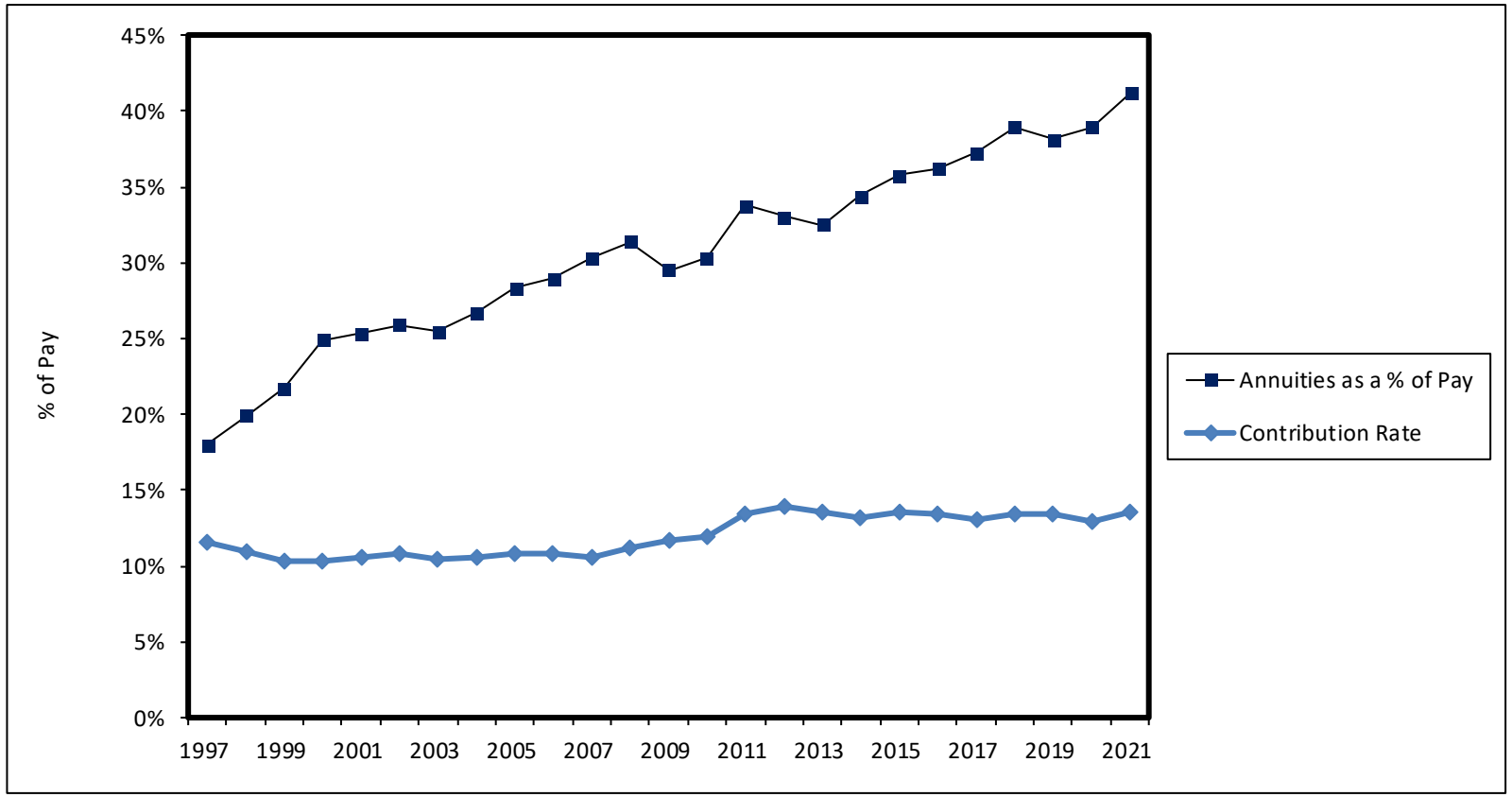
Funding Objectives

- Intergenerational equity with respect to plan costs
- Stable or increasing ratio of assets to liabilities
- Stable pattern of contribution rates

Financing Diagram



Annuities as a % of Payroll and WRS Average Total Contribution Rate*



Annuities are expected to continue to increase as a percent of payroll for several more decades.

**Average total rate shown is for General Participants.*

Actuarial Valuation Process

Member Data

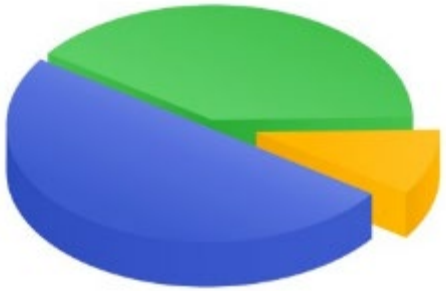
Financial Data

Actuarial Valuation

Plan Provisions

Actuarial Assumptions

Actuarial Cost Method



Active Participants at December 31, 2021

Valuation Group	Number	Annual Earnings ($ Millions)	Group Averages			
			Earnings	Age	Years of Service	Contribs.
General	234,494	$13,642.5	$58,179	45.0	11.0	$68,140
Executive Group & Elected Officials	1,252	117.0	93,428	54.9	14.0	126,882
Protective Occupation with Social Security	19,175	1,404.6	73,249	39.7	12.0	80,525
Protective Occupation without Social Security	2,762	245.9	89,016	40.4	13.5	99,281
Total Active Participants	**257,683**	**$15,410.0**	**$59,802**	**44.6**	**11.1**	**$69,680**
Prior Year	258,338	$15,065.6	$58,317	44.8	11.2	$64,823

All Participants at December 31, 2021

Active Lives Valuation

Valuation Group	Number	Average Annual Earnings/Benefits*
Actives	257,683	$59,802
Inactives	174,799	$20,059
Retirees & Beneficiaries	228,161	$27,810
Total Participants	**660,643**	

Retired Lives Valuation

* *For inactives, average money purchase balance.*

Actuarial Assumptions Update

- Reviewed 2018-2020 WRS experience study at December 2021 Board meeting
- Updated demographic assumptions including mortality
- Changed investment return assumption from 7.0% to 6.8%
- Other fine-tuning based on actuarial audits

Actuarial Assumptions Update
Mortality Improvement Illustration

		Life Expectancy*	
Year of Birth	Year Turn Age 65	Male	Female
1960	2025	22.1	24.1
1970	2035	22.8	24.7
1980	2045	23.5	25.3
1990	2055	24.1	25.9
2000	2065	24.7	26.5

** Based on the proposed 2020 WRS Experience Table for Healthy Retirees and projected with mortality improvements using the fully generational MP-2021 projection scale from a base year of 2010.*

Reflecting historic increases in life expectancy led to
1. Increased Employer contribution rates, and
2. Retiree dividend adjustments

Actuarial Assumptions Update
Mortality – 2018-2020 Experience Study Impact

Active Lives Valuation

- Slight upward pressure on contribution rates

Retired Lives Valuation

- Approximately cost neutral
- No phase-in of mortality reserve adjustment needed

Key point: Introduction of Generational Mortality in recent years has decreased impact of mortality update on contribution rates and dividends

Actuarial Assumptions Update
Historical Mortality Impact on Dividends

Over last 15 years
Consistent Phase-in
Of dividend decrease

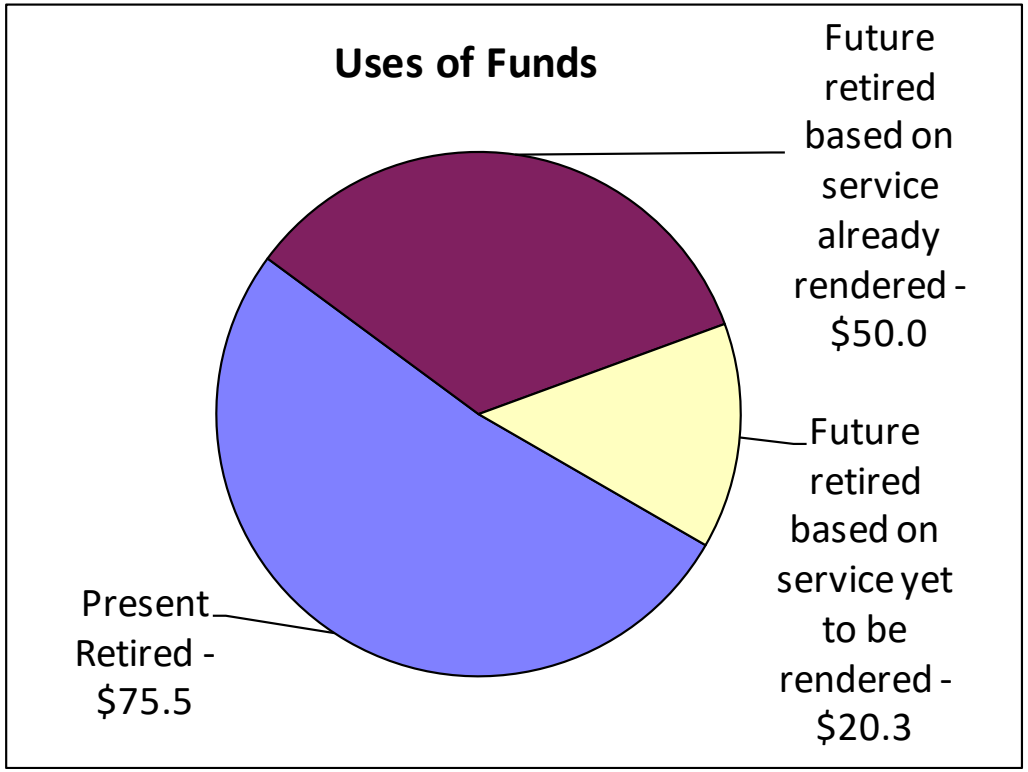
Year	Decrease
2006	0.5%
2007	0.5%
2008	0.5%
2009	0.3%
2010	0.3%
2011	0.4%
2012	0.3%
2013	0.3%
2014	0.4%
2015	0.5%
2016	0.5%
2017	0.5%
2018	0.2%
2019	0.2%
2020	0.2%

Looking ahead
No phase-in
2021-2023

Actuarial Assumptions Update
Mortality Experience – Summary

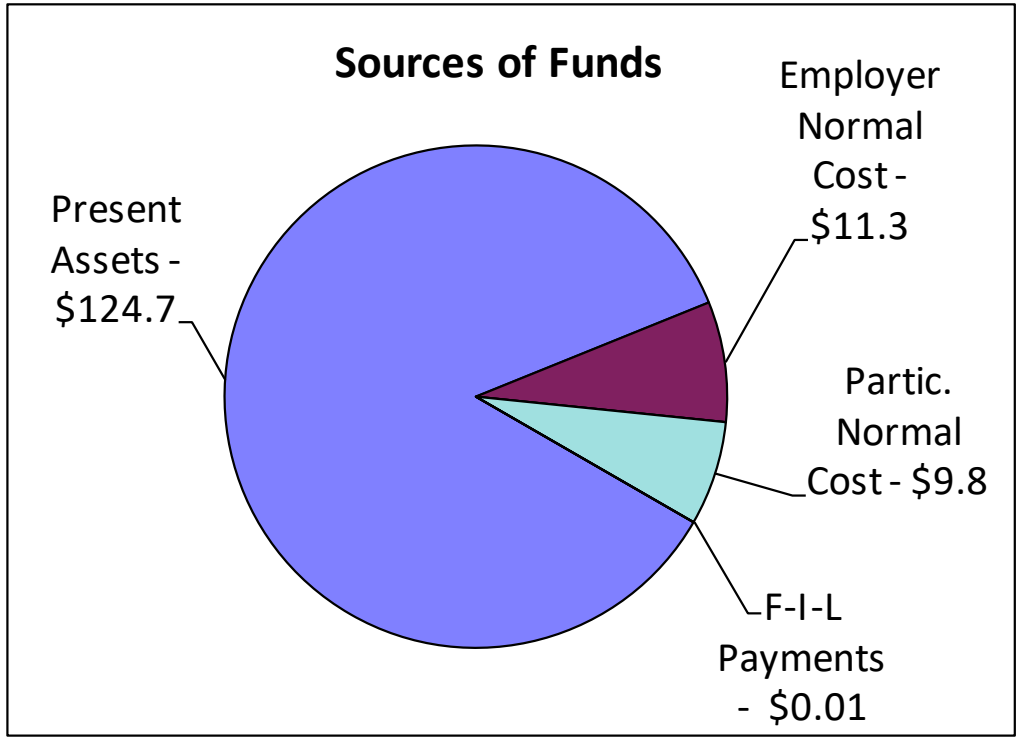
- All assumptions are continually fine-tuned to best approximate future reality
- WRS has separate Trust Funds and valuations for Annuitants vs. Employers/Employees
- Mortality impacts all members, separately impacting those in Annuitant Trust and Employer/Employee Trust

$145.8 Billion* of Benefit Promises to Present Active and Retired Members

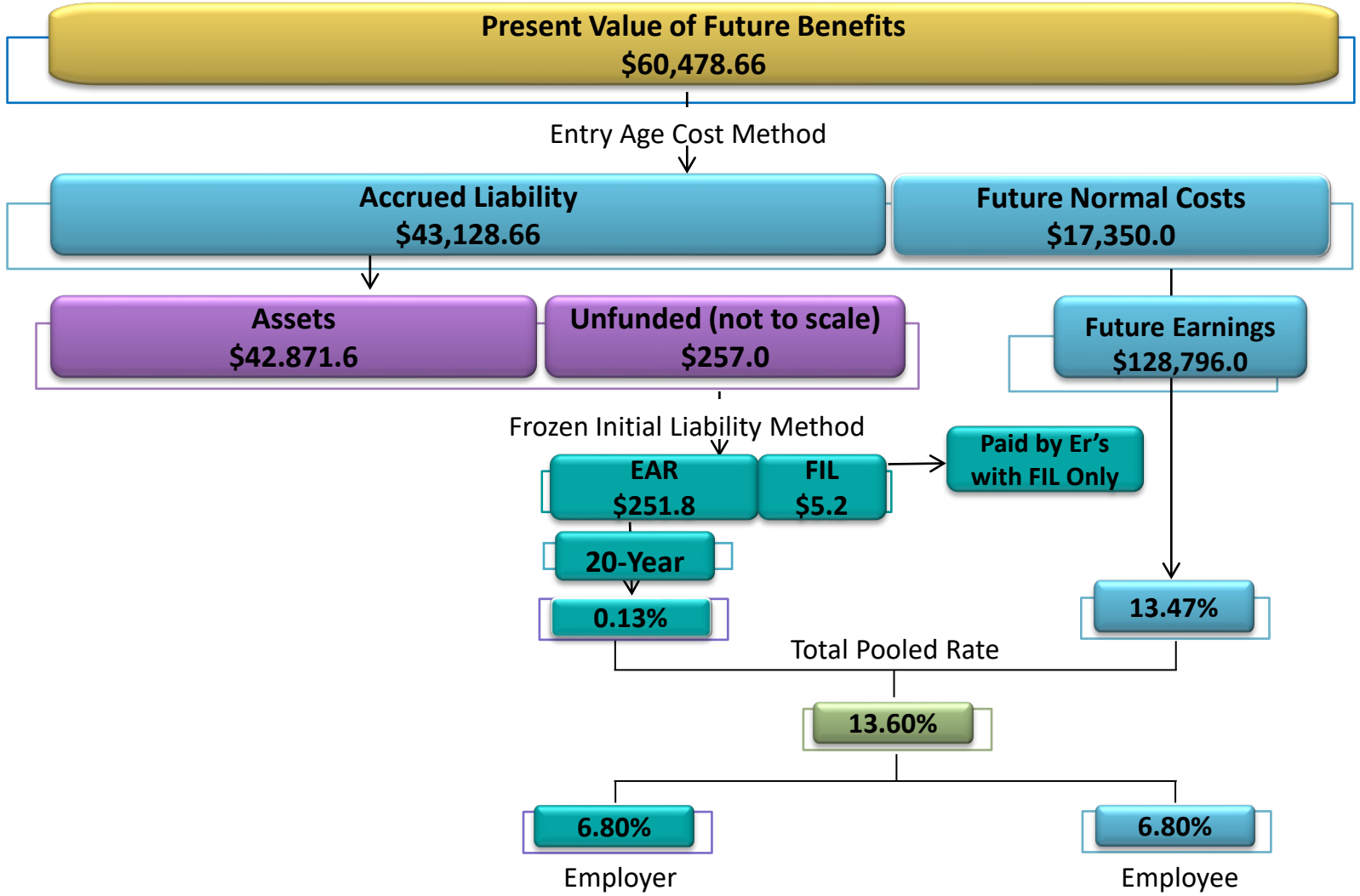


* *Present value of future benefits; all divisions combined.*

Sources of Funds for Financing $145.8 Billion of Benefit Promises



Actuarial Valuation Process
Illustration for General/Elected Group ($ Millions)



Actuarial Assumptions Update
Experience Study Contribution Impact

Group	Experience Study (Estimated)*	December 31, 2021 Valuation (Actual)
General and Exec/Elected	13.4%	13.6%
Protective - With SS	20.3%	20.0%
Protective - Without SS	24.7%	24.9%

* Note: Experience study based on preliminary assets (report issued November 2021) and prior year data

Summary of December 31, 2021 Valuation Results

	General, Executive & Elected Officials		Protective Occupation				Average
			With Soc. Sec.		Without Soc. Sec.		
	2023	2022	2023	2022	2023	2022	2023
Employer Normal Cost	6.80%	6.50%	13.20%	12.00%	18.10%	16.40%	7.65%
Participant Normal Cost	6.80%	6.50%	6.80%	6.50%	6.80%	6.50%	6.80%
Total Normal Cost	**13.6%**	**13.0%**	**20.0%**	**18.5%**	**24.9%**	**22.9%**	**14.5%**
Estimated Total NC ($ millions)*	**$1,985.3**	**$1,849.6**	**$298.0**	**$277.6**	**$64.9**	**$58.3**	

** Based on payroll projected from valuation date to fiscal year using the payroll growth assumption.*

Comparative Statement of Total Average Contribution Rates

Valuation 12/31	General	Executive & Elected	Protective with Soc. Sec.	Protective without Soc. Sec.
2001	10.63%	11.66%	11.68%	13.68%
2006	10.79%	11.56%	13.37%	14.57%
2011	13.40%	14.00%	16.40%	19.30%
2016	13.43%	13.43%	17.43%	21.65%
2017	13.12%	13.12%	17.10%	21.59%
2018	13.54%	13.54%	18.41%	23.02%
2019	13.53%	13.53%	18.51%	23.11%
2020	13.00%	13.00%	18.52%	23.86%
2021	13.60%	13.60%	20.03%	24.90%

Executive and Elected employee and employer rates for CY 2016 and beyond are made in accordance with the combined General/Exec & Elected results.

Pages B-5 & B-6

Protective Contribution Rate Levels

- Higher contribution rates compared to General Employees
  - Higher benefit multipliers
    - Protective = 2% or 2.5% (with or without Soc. Security)
    - General & Executive/Elected = 1.6%
  - Earlier Normal Retirement Eligibility
    - Protective at Age 54 or Age 53 with 25 years of service
    - General & Executive/Elected at Age 65/62 or Age 57 with 30 years of service

Protective Contribution Rate Levels

- More volatile contribution rates compared to General Employees
  - Asset/Payroll ratios[1]
    - Protective = 347% - 455% (with - without Soc. Security)
    - General & Executive/Elected = 312%
  - Liability/Payroll ratios[1]
    - Protective = 382% - 488% (with - without Soc. Security)
    - General & Executive/Elected = 313%

[1] From active lives valuation

Protective Contribution Rate Levels

- Higher liability volatility for Protectives has accentuated the impact of assumption changes
- Results of last 3 experience studies cumulatively increased contribution rates:
  - General: 1.37% added to rate
  - Prot. with SS: 4.35% added to rate
  - Prot. without SS: 4.72% added to rate

Reasons for Contribution Changes

	General, Executive & Elected	Protective with Soc. Sec.	Protective without Soc. Sec.
2022 Normal Cost Rate	13.00%	18.50%	22.90%
Effect of Benefit Change	0.00%	0.00%	0.00%
Effect of Assumption Change	1.00%	2.60%	2.90%
Effect of Asset Performance	(0.45)%	(0.92)%	(1.12)%
Effect of Salary Experience	(0.04)%	(0.32)%	(0.04)%
Effect of Money Purchase Benefit	0.10%	0.10%	0.10%
Demographic and Other Experience	(0.01)%	0.04%	0.16%
2023 Normal Cost Rate	13.60%	20.00%	24.90%

Generally zero when not Exper. Study year

The effect of Asset Performance is different for each group because the ratio of assets to payroll is different for each group.

Impact of Asset Gains/Losses

- Asset gains and losses above or below the assumed rate of return are smoothed in over the current year and four future years
- Four years after a valuation date, all asset gains or losses known at valuation date are fully recognized
- Statutory smoothing method in WRS is referred to as the Market Recognition Account (MRA)

Operation of Market Recognition Account (MRA) - $ Millions

	2021	2022	2023	2024	2025
Actual Investment Return	$ 19,957				
Assumed Investment Return	7,482				
Gain/(Loss) to be phased-in	12,475				
Phased-in recognition					
• Current year	$ 2,495	?	?	?	?
• First prior year	1,774	$ 2,495	?	?	?
• Second prior year	2,204	1,774	$ 2,495	?	?
• Third prior year	(2,049)	2,204	1,774	$ 2,495	?
• Fourth prior year	1,461	(2,049)	2,204	1,774	$ 2,495
Total recognized gain (loss)	$ 5,885	$ 4,424	$ 6,473	$ 4,269	$ 2,495

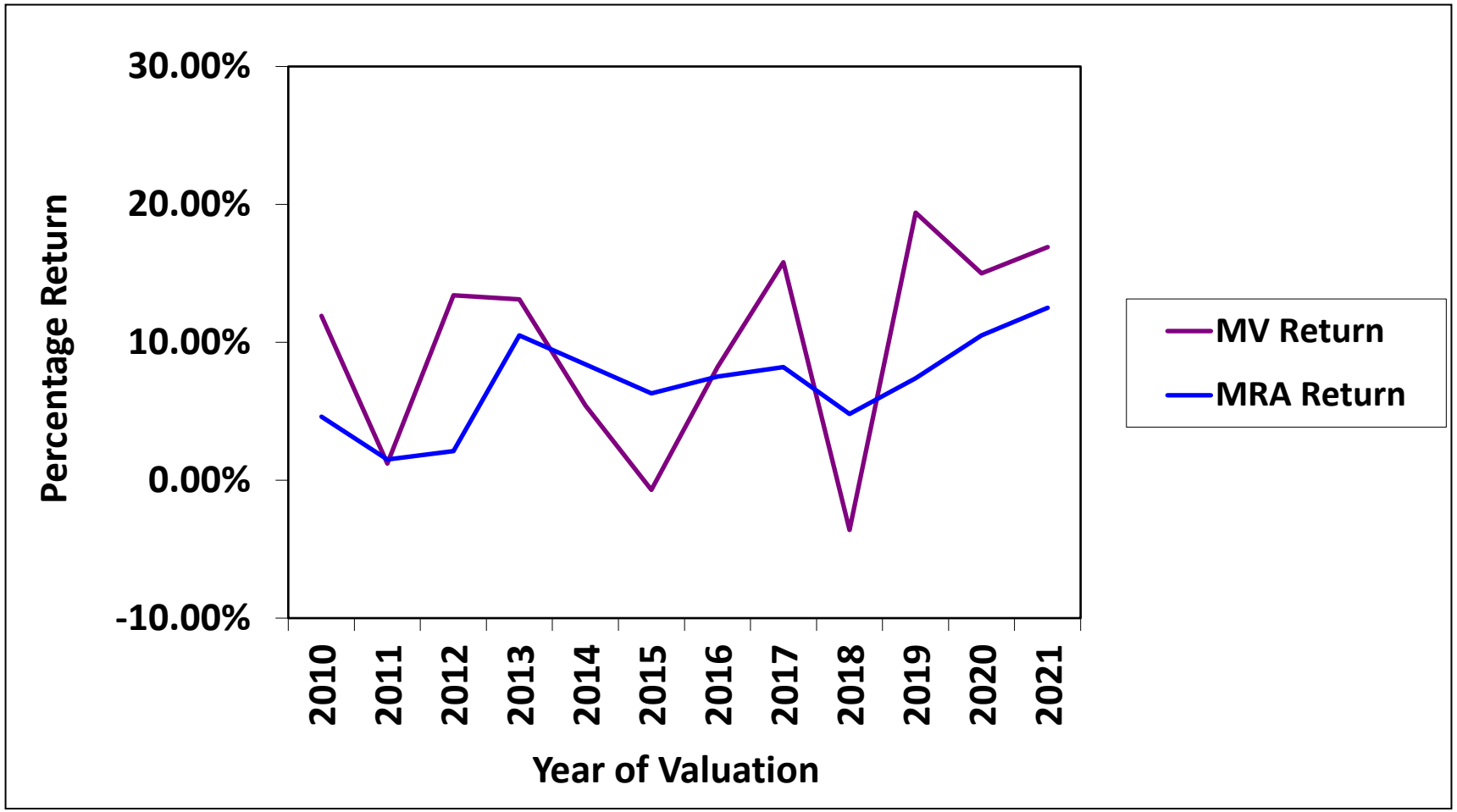
Reconciliation of Market Recognition Account (MRA)

	$ Millions
MRA at Beginning of Year	$ 108,808.6
Non-Investment Cash Flow	(3,854.1)
Assumed Return (at 7.0%)	7,481.7
Phase-in of Gains/(losses)	5,885.0
MRA at End of Year	$118,321.2
MRA Rate of Return	12.50%
Market Value Rate of Return	16.90%

Assets in MRA include non WRS programs such as Sick Leave, Duty Disability, etc.

Market value rate of return shown as calculated by GRS and may differ from returns calculated by SWIB and/or ETF.

Market Value Return vs. Market Recognition (Actuarial) Return



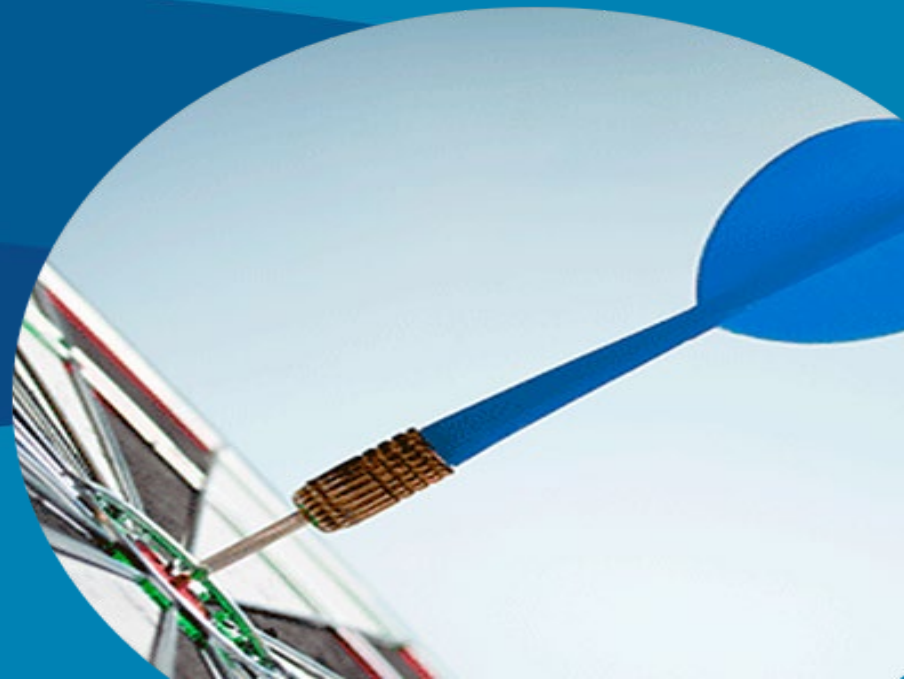
WRS Funded Status

	Frozen Initial	Entry Age
2017	100.0%	99.5%
2018	100.0%	98.6%
2019	100.0%	98.6%
2020	100.0%	99.1%
2021	100.0%	99.3%

Concluding Remarks

- There are $17.7 billion of unrecognized gains in the MRA
- Due to the cost sharing nature of WRS, asset gains have been traditionally shared by:
  - Employees (through increased money purchase benefits and decreases in contributions)
  - Employers (through decreases in contributions)
  - Retirees (through increased dividends)

Gain/Loss Analysis



2021 Gain/Loss Analysis

A Gain/Loss Analysis measures differences between actual and assumed experience in each Risk Area.

WRS Assumption Risk Areas

Primary Risks

Demographic	**Economic**
Normal retirement	Salary increases
Early retirement	Investment return
Death-in-service	
Disability	
Other separations	

Why Have a Gain/Loss Analysis?

- To gain an understanding of reasons for contribution rate changes
- It is a year-by-year measure of the operation of assumptions
- To determine when assumption changes are needed
- To understand the nature of risk

The Nature of Defined Benefit Plan Risk

Investment Risk	Asset/Liability Mismatch	Contribution Risk
• The risk that actual returns will differ from assumed returns.	• The potential that changes in assets are not offset by changes in liabilities. Because of the way assets are invested in most public plans this is almost synonymous with investment risk.	• The risk that actual contributions will differ from expected contributions. This could occur, for example, if the plan's funding policy is not followed, or if there are changes in the covered population.

Retirement Sustainability Equation - Asset/Liability Mismatch

$$C + I = B + E$$

B depends on

- Plan Provisions – at retirement, member receives x% of Final Average Pay times years of service
- Participant Experience – tenure, pay increases, etc.

Most Systems do not have asset changes offset by liability changes

Retirement Sustainability Equation
- Smaller Asset/Liability Mismatch in WRS

$$C + I = B + E$$

B depends on plan provisions, which incorporates **I** Experience

- Money Purchase DC benefit (changes with I results)
- Annual post-retirement adjustments to the monthly annuity benefit are based solely on investment returns
  - Dividends can increase or decrease

The Nature of Defined Benefit Plan Risk

Salary and Payroll Risk

- Individual pays and/or total covered payroll may not grow at the assumed rate. If covered payroll grows more slowly than assumed, or shrinks, actual contributions may fall short of expected contributions.

Longevity Risk

- Members may live for more or fewer years than expected, affecting the amount of pension income they will receive from the plan.

Other Demographic Risks

- Members may terminate, retire, or become disabled at rates other than expected, affecting both contribution rates and funded status.

Population Development During 2021

		Actual	Expected
Beginning Census		258,338	
(-)	Normal Retirement	4,600	4,911
(-)	Early Retirement	3,703	4,145
(-)	Death	129	279
(-)	Disability Retirement		
	- Total Approved	243	158
	- Less Pending	84	
	- Net New	159	
(-)	Other Separations	17,646	13,724
(-)	Transfers Out	2,014	
(+)	Transfers In	2,014	
(+)	New Entrants	25,582	
Ending Census		257,683	

Population Development During 2021

Normal Retirements: Varied by group and gender. Overall, lower than expected, but net result on liabilities is a small loss.

Early Retirements: Lower than expected, overall producing a small loss.

Deaths: Among active participants were lower than expected. The net result for the past year was a small loss.

Disabilities: Close to expected, producing a small gain.

Other Separations: Varied by group, gender and service. Overall, higher than expected. The net result was a small gain.

Comparative Schedule of Experience Gains/Losses by Decrement

Divisions Combined (Millions)

	2020	2021
Normal Retirement	$ (33.5)	$ (27.4)
Early Retirement	(22.7)	(20.9)
Disability Retirement	(10.5)	4.2
Death with Benefit	(1.7)	(3.0)
Other Separations	(40.4)	20.1
Total	$ (108.8)	$ (27.0)
As % of Liabilities	-0.24%	-0.06%

Components of Total Gain/(Loss)

	Gain/(Loss) in Millions	
	2020	**2021**
Economic Risk Areas	$760	$1,288
Decrement Risk Areas	(109)	(27)
Other Activity	(149)	(90)
Total Gain/(Loss)	$502	$1,171

Investment Earnings in 2021 (Active Participants)

	$ Millions
A. Average balance on Participant and Employer Accumulation Reserves	$44,159
B. Expected earnings: 7.0%	3,091
C. Earnings credited to Participant and Employer Accumulation Reserves	5,820
D. Gain (loss) from earnings: C - B	$ 2,729

Investment Earnings in 2021 (Active Participants)

- $2,729 million is the total recognized asset gain for the year for active participants
- However, part of the total gain/loss is allocated to Variable Excess accounts
- Some of the gain flows through to members via the operation of Money Purchase minimum benefits
- Must net these out to determine remaining core fund gain or loss
- Remaining portion affects contribution rates

Investment Earnings in 2021 (Active Participants)

	$ Millions
Gross Gain/(Loss) for the Year (for Actives)	$2,729
Less Estimated Gain/(Loss) due to Money Purchase	1,252
Less Estimated Gain/(Loss) due to Variable Excess	348
Net Core Fund Asset Gain/(Loss)	$1,129

Salary Related Gain/Loss

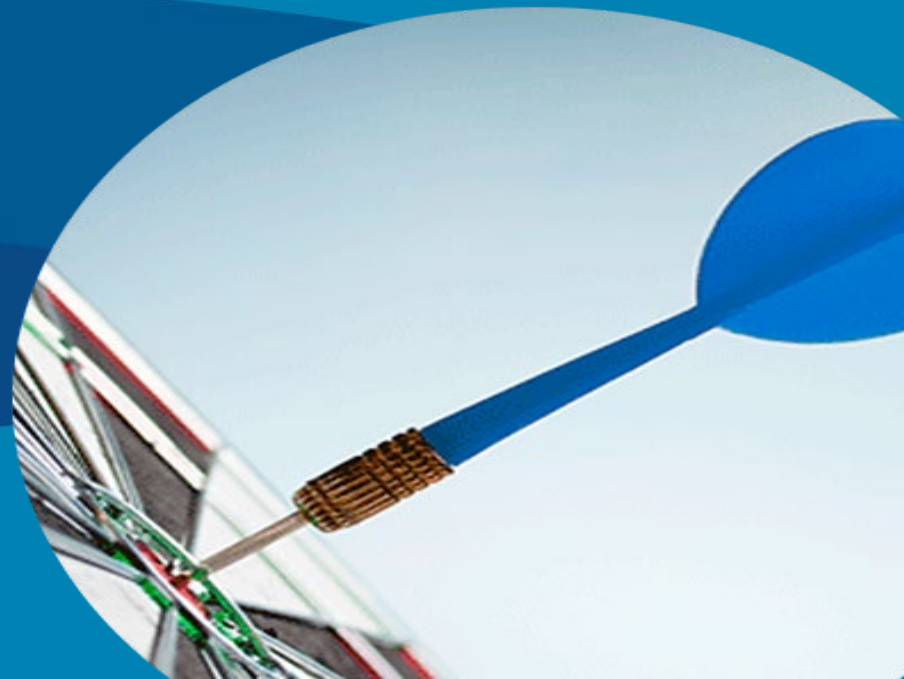
- Pay increases were overall lower than expected, resulting in a gain

	Gain/Loss $ Millions	% of Group Liabilities
General, Executive & Elected	$92.0	0.2 %
Protective w/Soc. Sec.	65.8	1.3 %
Protective w/o Soc. Sec.	1.5	0.1 %
	$159.3	0.3 %

Concluding Remarks

- Recognition of remaining prior asset gains and losses are expected over the next few years
- This Gain/Loss Analysis is the first in a regular 3-year experience cycle
- This study, together with the 2022 and 2023 results, will form the basis for the next experience study – to be performed after the December 31, 2023 valuation cycle

Current Events



Current Events

- COVID Implications for WRS
- Current Economic Market Implications for WRS
  - Inflation
  - Investment

COVID Dwindling (?)

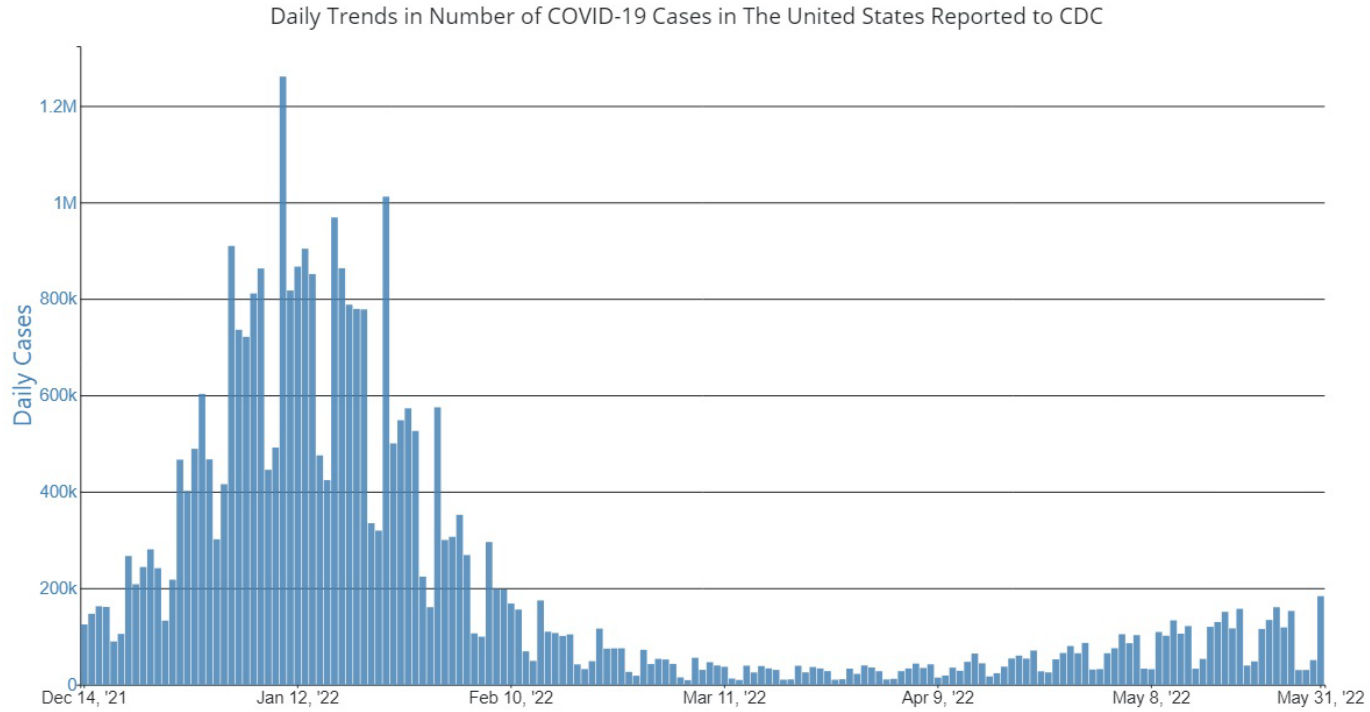
- CDC Data tracker as of June 1, 2022
  - Daily update for the United States

	Cases	Deaths
New (Daily Avg)	103,686	264
Total	84,176,694	1,002,422

258,655,540 of people 5+ (82.8%) have had at least one vaccination dose

COVID Dwindling (?)

- CDC Data tracker as of June 1, 2022
  - Daily update for the United States



COVID Implications for WRS

Valuation	Expected Deaths	Actual Deaths	Difference	Death Rate
12/31/2018	4,937	5,032	95	0.0251
12/31/2019	5,147	5,147	0	0.0250
12/31/2020	5,384	5,788	404	0.0273
12/31/2021	5,837	5,996	159	0.0275

Although we cannot ascribe the increase in death rates directly to the pandemic, it is notable that the increase in death rate is appropriately coincident with the start of the COVID-19 pandemic. Note: jump in E[Deaths] in 2021 is due to new assumed mortality.

COVID Implications for WRS

- Average mortality rate remained elevated by a similar amount as last year, possible due to the pandemic
- Overall impact on 2022 Core Dividends relatively small
- Only two years of experience at this point
- Typically need three to five years of data to determine if this will be part of a longer term trend or an isolated short term event

Economic Markets: Actual Inflation (CPI-U)

- Could be that a 1970s replay is unlikely
  - 1974 inflation rate = 12.2%
  - 1979 inflation rate = 13.3%
- But, we may be moving on from 30+ year low inflation period

Calendar Year Period	Price Inflation (CPI)	National Average Earnings (NAE)
1950-1959	2.2%	4.5%
1960-1969	2.5%	4.3%
1970-1979	**7.4%**	6.9%
1980-1989	5.1%	5.8%
1990-1999	**2.9%**	4.2%
2000-2009	**2.5%**	2.9%
2010-2019	**1.8%**	2.9%
2020	**1.4%**	2.8%
2021	**7.0%**	6.2%
Last 52 Years	3.9%	4.5%

Economic Markets: Actual Earnings (NAE)

- Also may be moving on from low wage inflation start to 21st century
- WRS largely experienced pay gains in many of last 30 years
- A return to historical averages means higher inflation and **higher wages going forward** if living standards to be maintained
  - Given real wage growth

Calendar Year Period	Price Inflation (CPI)	National Average Earnings (NAE)
1950-1959	2.2%	4.5%
1960-1969	2.5%	4.3%
1970-1979	**7.4%**	**6.9%**
1980-1989	5.1%	5.8%
1990-1999	**2.9%**	4.2%
2000-2009	**2.5%**	**2.9%**
2010-2019	**1.8%**	**2.9%**
2020	**1.4%**	**2.8%**
2021	**7.0%**	**6.2%**
Last 52 Years	**3.9%**	**4.5%**

Inflation Impact on WRS

- Dividends have provided inflation protection, on average, over the last 35 years
  - Note that preservation of purchasing power is generally not a specific objective
  - Results dependent on when member retires
- A new higher inflationary environment is unknown territory
  - Will dividends enable retirees to maintain living standard?

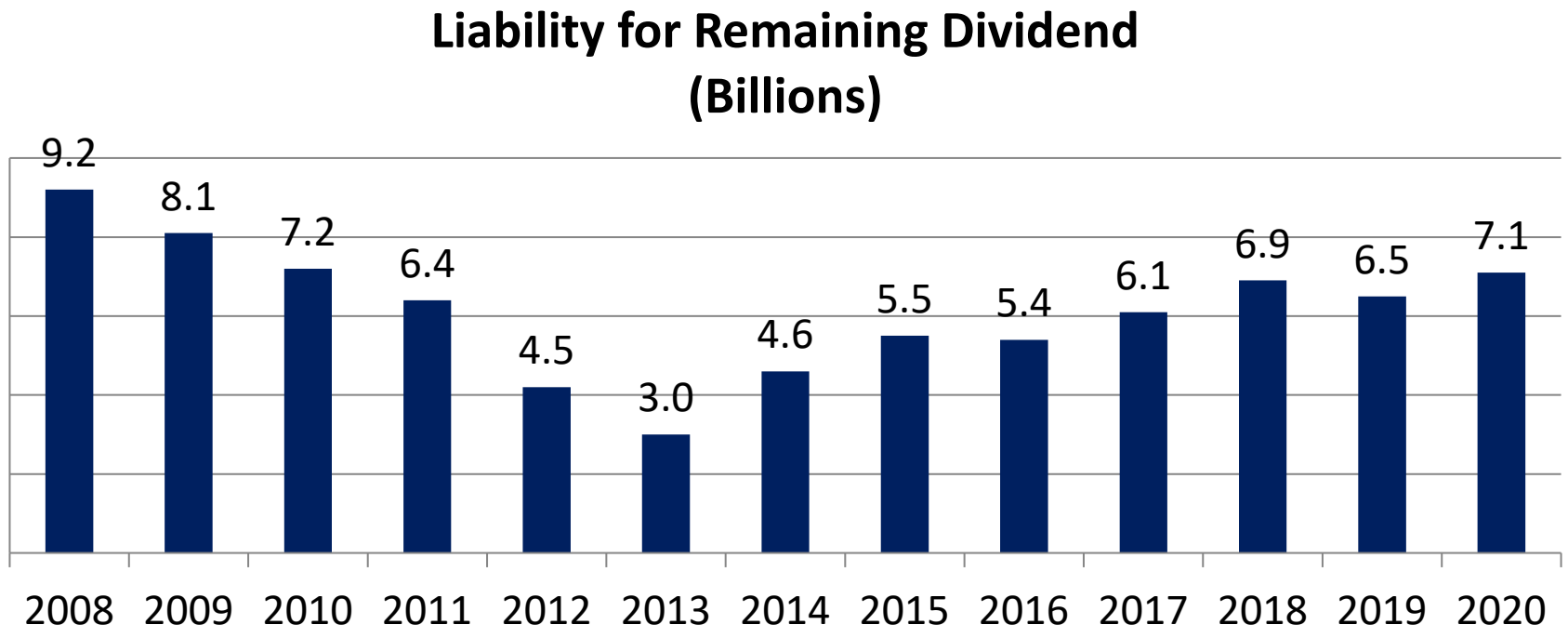
Investment Impact on WRS

- GRS stress tested WRS with SWIB in 2021, investigating Black Swan scenarios
  - *Generic*: Negative 30% return in year 1, assumed return of 7% thereafter (no bounce back)
  - *SWIB Model*: Negative 23.4 % return in year 1, bounceback 21.1% return in year 2, followed by 7.89% return for 8 years and 7% thereafter
- In a highly diversified portfolio like WRS', actual large one year asset losses (-23%, -30%) would reflect asset market meltdown in total

Investment Impact on WRS

- Deterministic stress test investigated impact on
  - Contribution rates
  - Expected dividends
  - Dividend Liability = Total Retiree Liability (w/div.) less Base Benefit Liability (w/o div.)
  - Retiree Funded Status = Total Retiree Liability (w/div.) / Base Benefit Liability (w/o div.)

Historic Dividend Liability ("Past Dividend Liability")



Notes: 1) drawdown of the reserve via dividend reductions in 2008- 2013 followed by the dividend buildup affects different cohorts of retirees differently.
2) Mortality impacts the past dividend liability in 2015-2016, 2018-2019.

Investment Impact on WRS: 2021 SWIB Study Results Summary

Measure	Generic Black Swan "-30% Return Without Bounceback"	SWIB Model "-23% Return With Bounceback"
Dividend Liability	Depletion in 2025	Not depleted
Retiree Liability	Becomes underfunded	Not underfunded
Dividend impact	A series of negative dividends… Until most people at original benefit… Followed by an extended period of no dividends… Dividends could resume in 10 years	Negative dividends in 4 out of first 5 years… Followed by a return to positive dividends
Contrib. Rate Impact	Contribution Rate gradually increases by about 3% of payroll in year 5 and slowly declines thereafter	Contribution Rate gradually increases by about 2.5% of payroll in year 5 but declines thereafter

Action Items

ETF recommends the Employee Trust Funds Board (Board) Accept the actuary's report on the Wisconsin Retirement System (WRS) Annual Valuation of Active Lives – December 31, 2021 and adopt their recommendation.

Disclaimers

- This presentation shall not be construed to provide tax advice, legal advice or investment advice.
- Brian Murphy, Mark Buis and James Anderson 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.
- This is one of multiple documents comprising the actuarial report. Additional information regarding actuarial assumptions and methods, and important additional disclosures are provided in the full report entitled "Forty-First Annual Actuarial Valuation and Gain Loss Analysis."
- If you need additional information to make an informed decision about the contents of this presentation or the contents of the full report, or if anything appears to be missing or incomplete, please contact us before making use of the information.

Accumulated Sick Leave Conversion Credit Program Annual Valuation

Item 4B – Employee Trust Funds Board

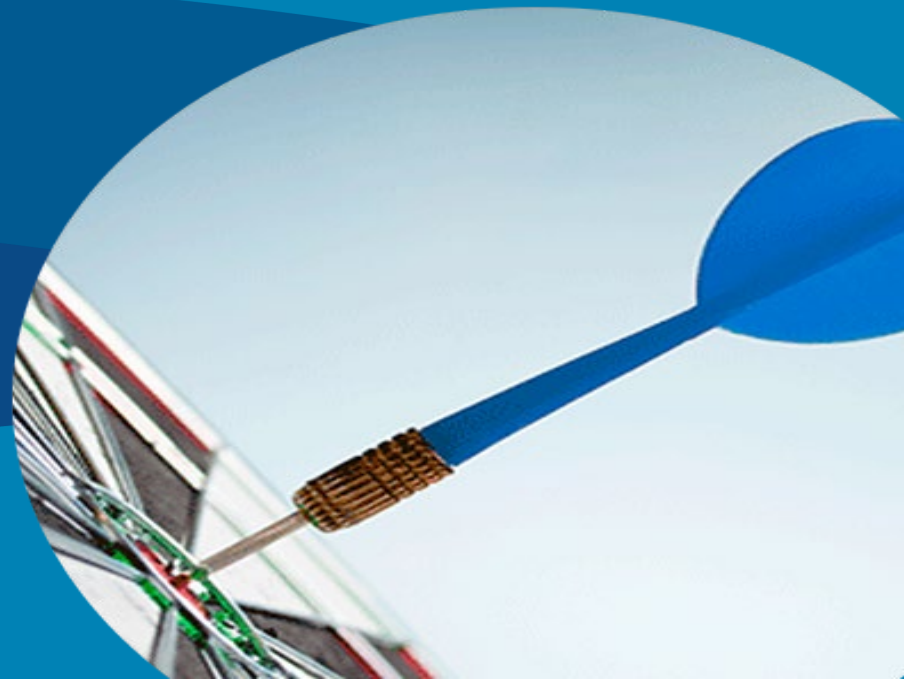
Gabriel Roeder Smith & Company
Brian Murphy, Senior Consultant
Jim Anderson, Senior Consultant
Mark Buis, Senior Consultant

etf

Wisconsin Sick Leave Conversion Credit Programs

Annual Actuarial Valuation as of December 31, 2021

June 2022



Wisconsin Sick Leave Conversion Credit Programs - Valuation

- Benefit provided to State of Wisconsin employees and eligible dependents
  - Covers cost of health insurance premiums until sick leave credits are exhausted
- Assets based on 5-year smoothing of investment earnings in connection with the Market Recognition Account developed for Wisconsin Retirement System (WRS) valuation
- Assumptions & actuarial cost method consistent with WRS valuation

Accumulated Sick Leave Conversion Credit Program (ASLCC)

	ASLCC Plan
Eligibility	Termination with 20 or more years of WRS creditable service (not necessarily all State Service) or eligible for an immediate annuity
ASLCC Credits	Credit computed at time of retirement, disability, or death while employed = (# days unused sick leave) x (highest basic pay rate)

Conversion credits used to cover cost of Health Insurance premiums for Employee and Dependents. Unused portion carried forward without interest and may be continued to an insured spouse after the death of the primary annuitant.

Supplemental Health Insurance Conversion Credit Program (SHICC)

	SHICC Plan		
Eligibility	Termination with at least 15 years of continuous service with State of Wisconsin (not the same as WRS creditable service)		
SHICC Matching Credits	Employment Category	First 24 Years of Service	Over 24 Years of Service
	Protective	78 Hours/year	104 Hours/year
	Non-Protective	52 Hours/year	104 Hours/year

Conversion credits used to cover cost of Health Insurance premiums for Employee and Dependents. Unused portion carried forward without interest and may be continued to an insured spouse after the death of the primary annuitant.

Summary of Participant Data Report Page 3

Active Participants

	State Employees (Non-University)	University	University Hospital	Total
Number	32,359	30,738	9,604	72,701
Annual Payroll	$2,074,127,892	$2,429,610,508	$684,731,947	$5,188,470,347
Accrued Unused Sick Days	2,690,771 days	2,800,228 days	365,719 days	5,856,718 days
Averages: Age	44.9 years	46.2 years	40.7 years	44.9 years
Service	11.4 years	10.9 years	8.0 years	10.8 years
Sick Leave Days	83.2 days	91.1 days	38.1 days	80.6 days

Terminated Vested Participants

Number	ASLCC Sick Leave Balance	SHICC Sick Leave Balance	Total Sick Leave Balance
459	$18,580,967	$11,934,585	$30,515,552

Summary of Participant Data Report Page 3

Retirees & Beneficiaries

Status	Number	ASLCC Sick Leave Balance	SHICC Sick Leave Balance	Total Sick Leave Balance
Annuitants Actively Using Sick Leave Credits	18,513	$646,558,765	$ 1,032,379,739	$1,678,938,504
Escrowed/On-Hold Annuitants	5,788	262,018,568	189,263,805	451,282,373
Total	24,301	908,577,333	1,221,643,544	2,130,220,877

In addition to the counts above, annuitants provided in the data with any of the following were excluded from the valuation:

- An account status other than active, escrowed or on-hold (i.e., closed, canceled, ineligible, etc.); or
- A $0 sick leave balance.

Average Premium Calculation Report Page 5

Retirees and Beneficiaries

	Rate Category	
	Non-Medicare	**Medicare**
Number of 1-Person Contracts*	2,142	7,200
Total Monthly Premium of 1-Person Contracts	$1,830,381	$2,642,501
Average 1-Person Premium as of 1/1/2022 (2./1.)	$ 854.52	$ 367.01
Number of Multiple-Person Contracts*	1,935	7,171
Total Monthly Premium of Multiple-Person Contracts	$3,539,005	$5,310,512
Average Multiple-Person Premium as of 1/1/2022 (5./4.)	$ 1,828.94	$ 740.55
Average Net Premium as of 1/1/2022 (50%*3. + 50%*6.)^	$ 1,341.73	$ 553.78

* Retirees with an account status of active and a premium amount populated in the data provided (some of whom have exhausted their sick leave credits). The number counts above were used strictly for developing average premiums and may be different from retiree counts shown throughout this report.

^ Used in the valuation of all non-active annuitants (i.e., current actives, preserved members and on-hold/escrowed Retirees). For active annuitants, the actual premiums provided in the data are used. Net premium is a blend of the 1-person and 2-person average premiums based on the 50% 1-person/2-person election percent assumption.

Summary of Sick Leave Asset Data Report Page 6

	ASLCC Program	SHICC Program	Total
Beginning Balance	$1,703,084,418	$1,093,080,063	$2,796,164,481
Adjustment	45,792	(116,799)	(71,007)
Adjusted Beginning Balance	$1,703,130,210	$1,092,963,264	$2,796,093,474
Revenues			
Contributions	$ 41,746,264	$ 15,657,937	$ 57,404,201
Investment Income	208,503,408	134,373,597	342,877,005
Total Revenues	$ 250,249,672	$ 150,031,534	$ 400,281,206
Expenses			
Insurance Premiums	$ 111,723,140	$ 52,608,782	$ 164,331,922
Other	0	0	0
Administration	709,799	710,274	1,420,073
Total Expenses	$ 112,432,939	$ 53,319,056	$ 165,751,995
Ending Balance - December 31, 2019	$1,840,946,943	$1,189,675,742	$3,030,622,685
Internal Rate of Return	12.5%	12.5%	12.5%

Based on Market Recognition Account and provided by ETF.

December 31, 2021 Sick Leave Valuation Results – Employer Contribution Rates Report Page 1

Valuation Date December 31	Fiscal Year Ending December 31	ASLCC	SHICC	Total	UAAL* Amortization Years
2012^	2014	0.9%	0.5%	1.4%	13
2013	2015	0.8%	0.4%	1.2%	12
2014	2016	0.8%	0.4%	1.2%	11
2015^	2017	0.9%	0.4%	1.3%	10
2016	2018	0.8%	0.4%	1.2%	9
2017	2019	0.8%	0.3%	1.1%	8
2018^	2020	0.9%	0.3%	1.2%	7
2019	2021	0.8%	0.3%	1.1%	6
2020	2022	0.7%	0.1%	0.8%	5
2021^	2023	0.7%	0.2%	0.9%	4

** Unfunded Actuarial Accrued Liabilities*
^ Assumption change

Concluding Remarks

- This year's results were affected by assumption changes adopted pursuant to the three-year experience study covering the period January 1, 2018 to December 31, 2020 including the adoption of a 6.8% investment return assumption.
- During 2021, investment return on a market value basis was greater than the assumed level of 7.0%
- The Market Recognition Account phases-in gains and losses over 5 years -- resulting in a 12.5% return on a smoothed basis
  - This put downward pressure on contribution rates
  - If actuarial assumptions are realized, there will be downward contribution pressure in future years
  - This is a big “if” given the current volatility in the investment markets

Action Items

ETF recommends the Employee Trust Funds Board (Board) accept the actuary's report on the Accumulated Sick Leave Conversion Credit Programs Actuarial Valuation as of December 31, 2021 and adopt their recommendation.

Disclaimers

- This presentation shall not be construed to provide tax advice, legal advice or investment advice.
- Brian Murphy, Mark Buis and James Anderson are Members of the American Academy of Actuaries (MAAA) and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.
- This is one of multiple documents comprising the actuarial report. Additional information regarding actuarial assumptions and methods, and important additional disclosures are provided in the full report entitled "Wisconsin Accumulated Sick Leave Conversion Credit Programs Annual Actuarial Valuation, December 31, 2021."
- If you need additional information to make an informed decision about the contents of this presentation or the contents of the full report, or if anything appears to be missing or incomplete, please contact us before making use of the information.

Break

The meeting will resume following the break.

40.65 Duty Disability Actuarial Review

Item 4C – Employee Trust Funds Board

Milliman, Inc.

Paul Correia, Principal and Consulting Actuary

Dan Skwire

Actuarial Valuation of the State of Wisconsin Duty Disability Program

As of December 31, 2021

State of Wisconsin Employee Trust Funds
Board Meeting
June 23, 2022

Paul L. Correia, FSA, MAAA
Milliman, Inc.

Milliman

Actuarial Valuation of Duty Disability Program
Limitations of Analysis

- We relied on information provided by the Department of Employee Trust Funds (ETF). If any of this information is inaccurate or incomplete, our results may be affected.
- The valuation uses actuarial assumptions that are individually reasonable and that, in combination, offer our best estimate of anticipated experience.
- To the extent that actual experience varies from the assumptions, the emerging costs of the plan will vary from the projections we have prepared.
- The calculations in this presentation are consistent with our understanding of Duty Disability funding requirements and goals. Additional determinations may be needed for other purposes.
- Milliman's work product was prepared exclusively for ETF for a specific and limited purpose. It is not for the use or benefit of any third party for any purpose.
- I, Paul Correia, am a Consulting Actuary with Milliman. I am a member of the American Academy of Actuaries, and I meet its Qualification Standards to render the actuarial opinion contained herein.

Duty Disability
Liabilities as of December 31, 2021

Liability Component	Estimated Liability
Open Claims	$459,788,617
Future Survivors	$26,056,203
IBNR Claims	$27,607,638
Loss Adjustment Expenses	$10,307,749
Total	**$523,760,207**

- Liability for open claims represents the present value of expected future benefit payments.
  - 1,021 open claims as of December 31, 2021
  - 963 disabled members
  - 58 survivors (i.e., spouses and domestic partners)
- Liability for future survivors represents the present value of expected future benefit payments to survivors of currently disabled members as of December 31, 2021.
- Liability for incurred but not reported (IBNR) claims represents the present value of expected future benefit payments to members and survivors whose claims were incurred but had not been reported as of December 31, 2021.
- Liability for loss adjustment expenses represents the present value of future expenses related to the ongoing management and payment of Duty Disability claims.

Duty Disability
Comparison to Prior Year

Liability Component	12/31/2020	12/31/2021
Open Claims	$413,524,714	$459,788,617
Future Survivors	$21,037,538	$26,056,203
IBNR Claims	$23,966,544	$27,607,638
Loss Adjustment Expenses	$9,191,378	$10,307,749
Total	**$467,720,173**	**$523,760,207**

- The December 31, 2021 liabilities were calculated using the same claim termination and estimated offset assumptions as last year. A lower discount rate assumption (6.8%) was used to compute the liabilities as of December 31, 2021, resulting in higher liabilities with all else equal.
- The number of open claims decreased slightly from 1,026 as of December 31, 2020 to 1,021 as of December 31, 2021, and the average monthly benefit amount decreased from $2,933 as of December 31, 2020 to $2,914 as of December 31, 2021.
- The increase in liabilities was primarily driven by an adjustment to the timing of annual cost-of-living adjustment benefits (COLA) in our projection of future benefits.

Duty Disability
Waterfall Analysis for Open Claim Liability

Change in Valuation Assumption or Methodology	Estimated Liability	% Change from Above Row
1. Liability as of 12/31/2020	$413,524,714	NA
2. Liability as of 12/31/2021 – same assumptions as above	$409,296,922	-1.0%
3. Liability as of 12/31/2021 based on 6.8% Interest	$417,866,655	2.1%
4. Liability as of 12/31/2021 with updated COLA	$459,788,617	10.0%

- The December 31, 2021 liability would have decreased by 1.0% under the same assumptions used as of December 31, 2020 (row 2) due, in part, to reductions in the number of open claims and the average monthly benefit amount.
- The change in the discount rate assumption from 7.0% to 6.8% resulted in a 2.1% increase in the open claim liability as of December 31, 2021 (row 3).
- The change in the COLA methodology moved the open claim liability up another 10.0% (row 4)

Duty Disability
Retrospective Adequacy Study

Experience Period	Average Annual Margin	
	Disabled Members	Survivors
2017	1.06%	2.44%
2018	0.48%	0.21%
2019	0.99%	0.31%
2020	0.96%	-1.21%
2021	1.15%	1.67%
Total	**0.93%**	**0.69%**

- Experience: Claims from disabled members and survivors from the period 2017 - 2021
- Positive overall margins (i.e., 0.93% and 0.69%) indicate the liabilities were adequate to cover the runout of open claims during the study period

Duty Disability
Funding Status as of December 31, 2021

Balance Sheet Component	2021
Beginning of Year Reserve Balance	$693,237,197
+ Investment Income	$84,590,183
+ Premium Contributions and Miscellaneous Income	$4,036,165
- Insurance Claims	$36,364,150
- Administrative Expenses	$938,438
End of Year Reserve Balance	$744,560,957
Actuarial Liability as of December 31, 2021	$523,760,207
Surplus as of December 31, 2021	$220,800,750
Surplus as a Percentage of Actuarial Liability	**42%**

- The surplus in the Duty Disability reserve was $220.8 million as of December 31, 2021, representing 42% of the actuarial liability as of December 31, 2021.
- The surplus ratio as of December 31, 2021 is higher than the target range of 25% to 35% of the actuarial liability.

Duty Disability
Funding Analysis

Scenario	Contribution Rate	Expected Surplus 12/31/2023	Expected Surplus 12/31/2030
Baseline	Current rates in 2023 and beyond	$234M (**43%** of 2023 liability)	$283M (**48%** of 2030 liability)
Scenario 1	Reduced by 50% in 2023 then held level	$233M (**43%** of 2023 liability)	$271M (**46%** of 2030 liability)
Scenario 2	Waived in 2023 and beyond	$232M (**43%** of 2023 liability)	$259M (**44%** of 2030 liability)
Scenario 3	Waived in 2023 then resume current rates in 2024 and beyond	$232M (**43%** of 2023 liability)	$278M (**47%** of 2030 liability)

- Different contribution rates do not have a large impact on the **surplus ratio** because contributions are significantly lower than the investment income assumed over the projection period (6.8%).
- Fund and surplus projections take into consideration potential future contributions and claims for active employees.

Duty Disability
Conclusions

- Duty Disability liabilities as of December 31, 2021 are approximately 12% higher than the estimated liabilities as of December 31, 2020 due, in part, to a reduction in the discount rate assumption and adjustments to the timing of COLA benefits.

- The funding analysis suggests that the surplus in Duty Disability reserves is expected to grow in every scenario, because expected income on investments exceeds benefit payments and expenses in every year.

- The surplus ratio as of December 31, 2021 (42% of actuarial liability) is higher than the target range of 25% to 35% of the actuarial liability.

- We will be performing a detailed experience study prior to the next valuation which is likely to result in some updates to assumptions.

Duty Disability Insurance Employer Rates 2023

Item 4C – Employee Trust Funds Board

Cindy Klimke-Armatoski, Chief Trust Finance Officer

Division of Trust Finance

Action Needed

ETF requests the Employee Trust Funds Board approve the Duty Disability Insurance Program Actuarial Valuation as of December 31, 2021 and set 2023 contribution rates at 50% of current rates.

Duty Disability Program Reserves

	2020	2021
Actuarial Liability	$467,720,173	$523,760,207
Reserve Balance	$693,226,275	$744,560,957
Surplus / (Deficit)	$225,506,102	$220,800,750
Funded Ratio	148%	142%

Duty Disability Rates

- Employer paid contributions
- Contribution rates based on experience-rated tier schedule

Tier	Number of Claims	Claims as a % of Covered Payroll	2022 Contribution Rate as a % of Covered Payroll
1	1	<=1.5%	0.04%
2	2	>1.5% but ≤ 3.0%	0.08%
3	3	>3.0% but ≤ 4.5%	0.17%
4	4	>4.5% but ≤ 6.0%	0.30%
5	5	>6.0% but ≤ 7.5%	0.47%
6	6	>7.5% but ≤ 9.0%	0.68%
7	7	>9.0% but ≤ 10.5%	0.93%
8	8 or more	Claims > 10.5%	1.12%

Recommended 2023 Rates (reduction of ~50% of 2022 rates)

Tier	Base Contribution Rate	Actuarial Adjustment Rate	Recommended 2023 Contribution Rate	# of Employers
1	0.25%	-0.23%	0.02%	424
2	0.50%	-0.46%	0.04%	41
3	1.00%	-0.91%	0.09%	24
4	1.75%	-1.60%	0.15%	12
5	2.75%	-2.51%	0.24%	3
6	4.00%	-3.65%	0.35%	4
7	5.50%	-5.02%	0.48%	2
8	6.60%	-6.03%	0.57%	1

Action Items

ETF requests the Employee Trust Funds Board approve the Duty Disability Insurance Program Actuarial Valuation as of December 31, 2021 and set 2023 contribution rates at 50% of current rates.

Questions?

Thank you

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608-266-3285
1-877-533-5020

Duty Disability Reserve Balance Policy Review

Item 4D - Employee Trust Funds Board

Anne Boudreau, Deputy Administrator

Division of Retirement Services

Action Items

ETF recommends the Employee Trust Funds Board (Board) approve the Duty Disability Program Reserve Policy and also approve maintaining the current reserve target of 130% of plan liabilities.

Duty Disability

- Lifetime income replacement program
- Benefits payable to protective occupation participants injured while performing their protective occupation duties
- Funded by employer contributions
- Contribution rates based on experience rated tier schedule and the program's current funding needs.

Duty Disability Reserve Policy Objective

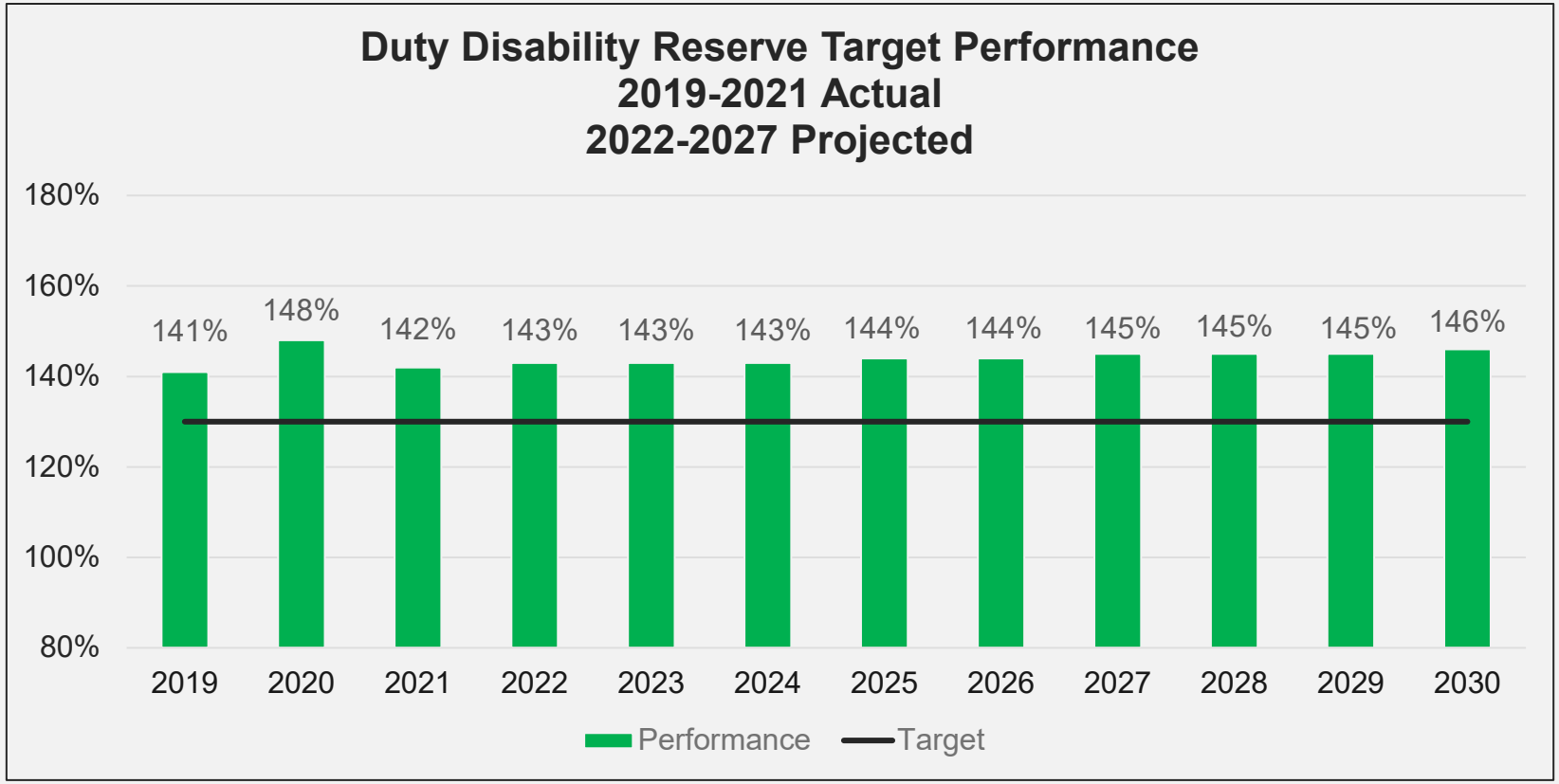
Objective

- Provide the Board with guidance in establishing program reserve target
  - Sufficient to fund plan liabilities
  - Maintain fiscal integrity
  - Maintain premium rate adequacy and stability

Duty Disability Reserve Policy

- Approved by Board June 20, 2019
- Minimum 3-year reviews
- Board sets reserve target
- Policy establishes target range
  - +/- 5% of target

Duty Disability Reserve Performance



Action Items

ETF recommends the Employee Trust Funds Board (Board) approve the Duty Disability Program Reserve Policy and also approve maintaining the current reserve target of 130% of plan liabilities.

Questions?

Stay Connected

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Delegation of Authority to Contract for Actuarial Services for Health Insurance Programs to the GIB

Item 4E – Employee Trust Funds Board

Laura Patterson, Policy Analyst

Office of Policy, Privacy, and Compliance

Action Items

ETF recommends the Employee Trust Funds Board (Board) renew the delegation of authority from the ETF Board to the Group Insurance Board to execute health insurance program actuarial services contracts, including contract amendments.

Lunch Break

The meeting will resume following the break.

Secure Online Access and Demo

Item 5A - Employee Trust Funds Board
June 23, 2022

Anne Boudreau, Deputy Administrator, Division of Retirement Services

Maxwell Lacy, Project Manager, Office of Enterprise Initiatives

Nathan Mack, Outreach and Benefits Specialist, Division of Retirement Services

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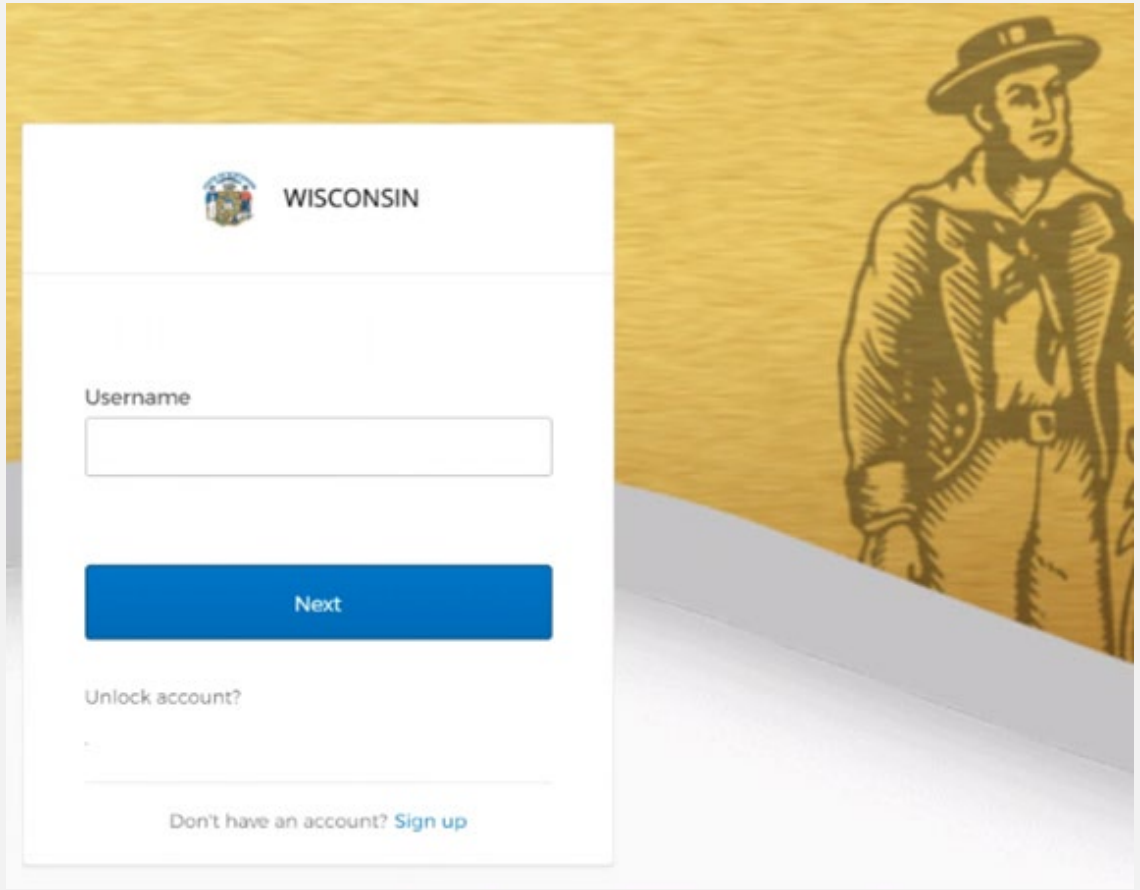
Agenda

- MyWisconsin ID
- ETF Web Forms
- Demo
- Questions

What is MyWisconsin ID?

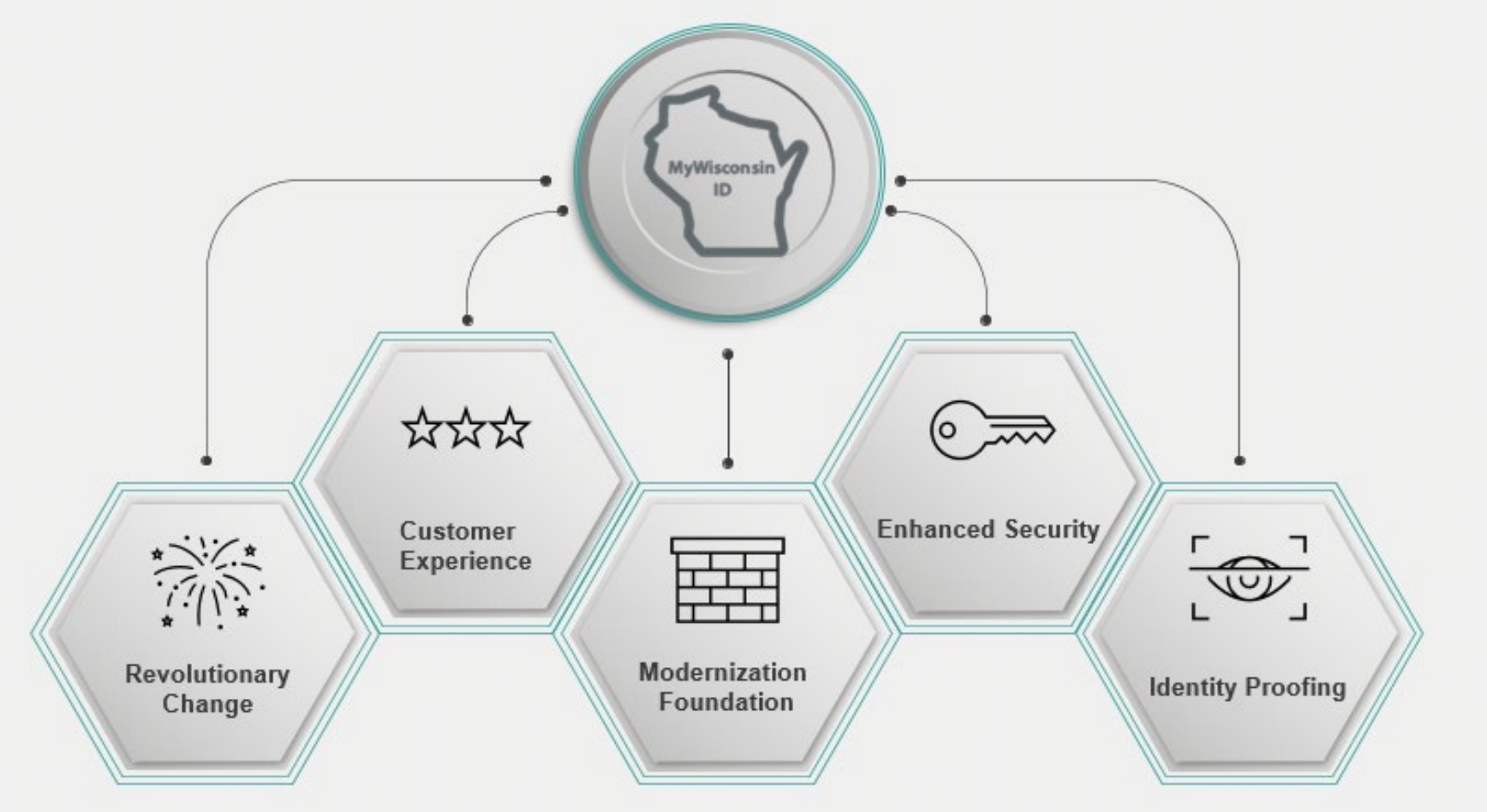


- Citizen users create a single account to access Wisconsin agency online applications
- ETF examples
  - ETF Web Forms
  - Insurance Administration System
  - Pension Administration System
- Other potential Wisconsin agency uses
  - Purchase fishing license
  - Renew license plates

Benefits of MyWisconsin ID

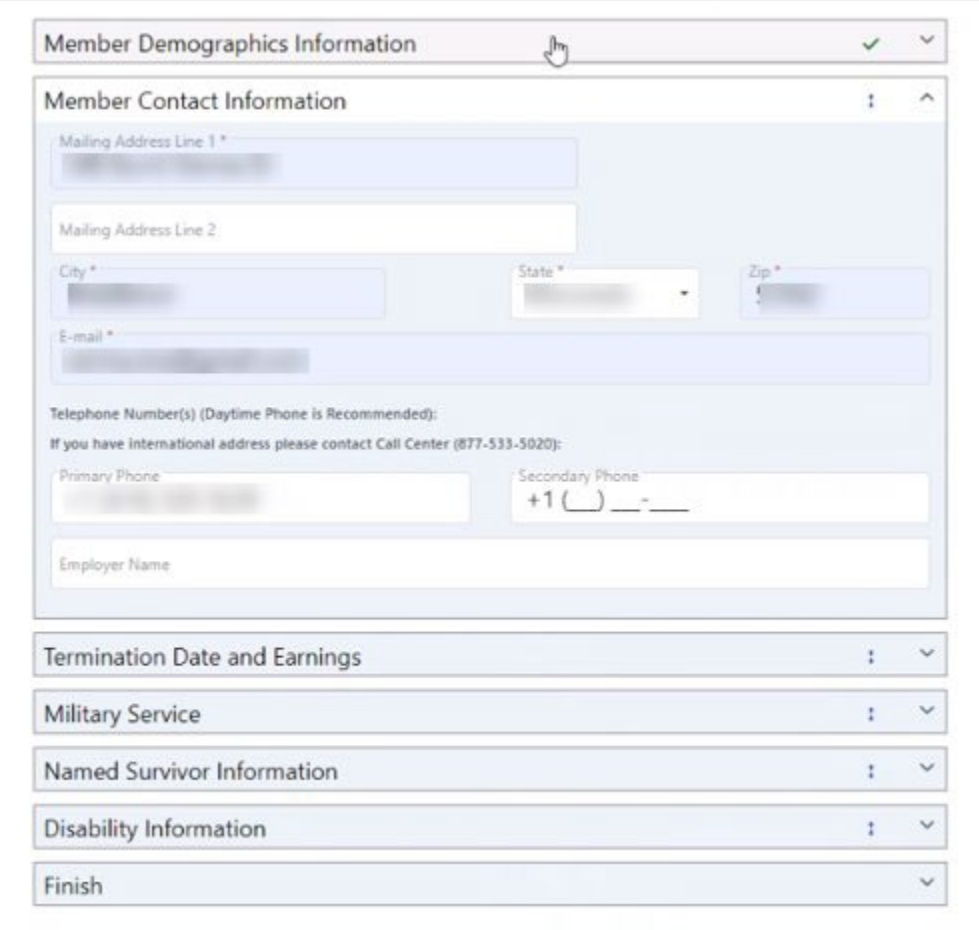
- Employs Okta technology – an industry leader in identity management
- Uses multi-factor authentication (MFA) and strong passwords
- Offers self-help options for guidance and account recovery
- Responds to member requests for online interactions

MyWisconsinID and ETF

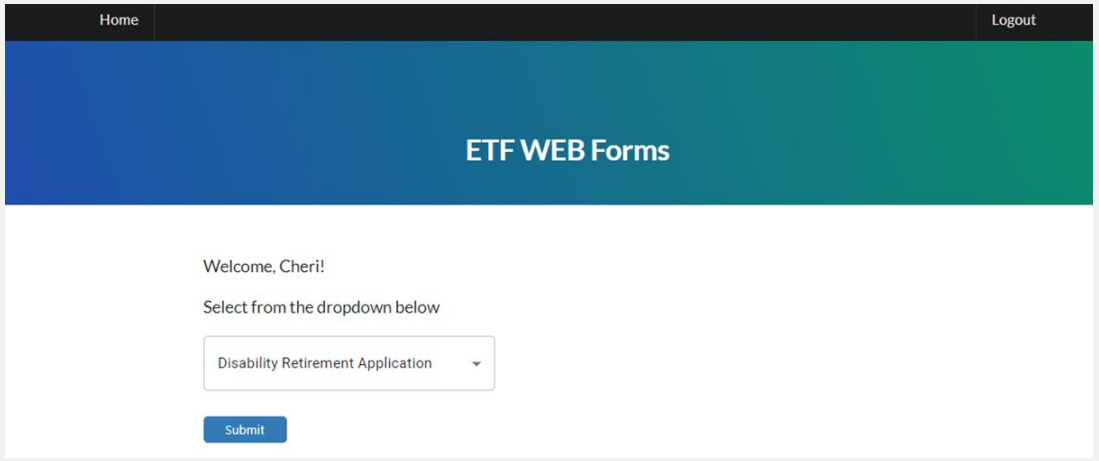


What is ETF Web Forms?

- New online form development tool
- In combination with MyWisconsin ID – members can interact securely with forms
- ETF can prefill some of the fields for members
- Forms submitted directly to ETF for processing



Benefits of ETF Web Forms



For Members

- Convenient / efficient
- Lessen the paper in their lives
- Reduction in data errors

For ETF

- Responsive to members' requests for online interactions
- Creates one application to support multiple forms to replace paper versions
- Repeats use of screens and widgets


Questions?

Thank you

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1-877-533-5020

Secretary's Report

Item 5B - Employee Trust Funds Board

John Voelker, Secretary

ETF Organizational North Star Metrics

Item 5C – Employee Trust Funds Board

Pam Henning, Assistant Deputy Secretary

Legislative Update

Item 5D – Employee Trust Funds Board

Tarna Hunter

Strategic Engagement/Government Relations Director

Office of the Secretary

Legislature Turnover

- Fall Elections: 116 seats up for election
    - 99 Assembly
    - 17 Senate
- 23 Wisconsin State Assembly Representatives not seeking reelection.
- 7 Wisconsin State Senators not seeking reelection.

2023-25 Biennial Budget

Why is the biennial budget process important?

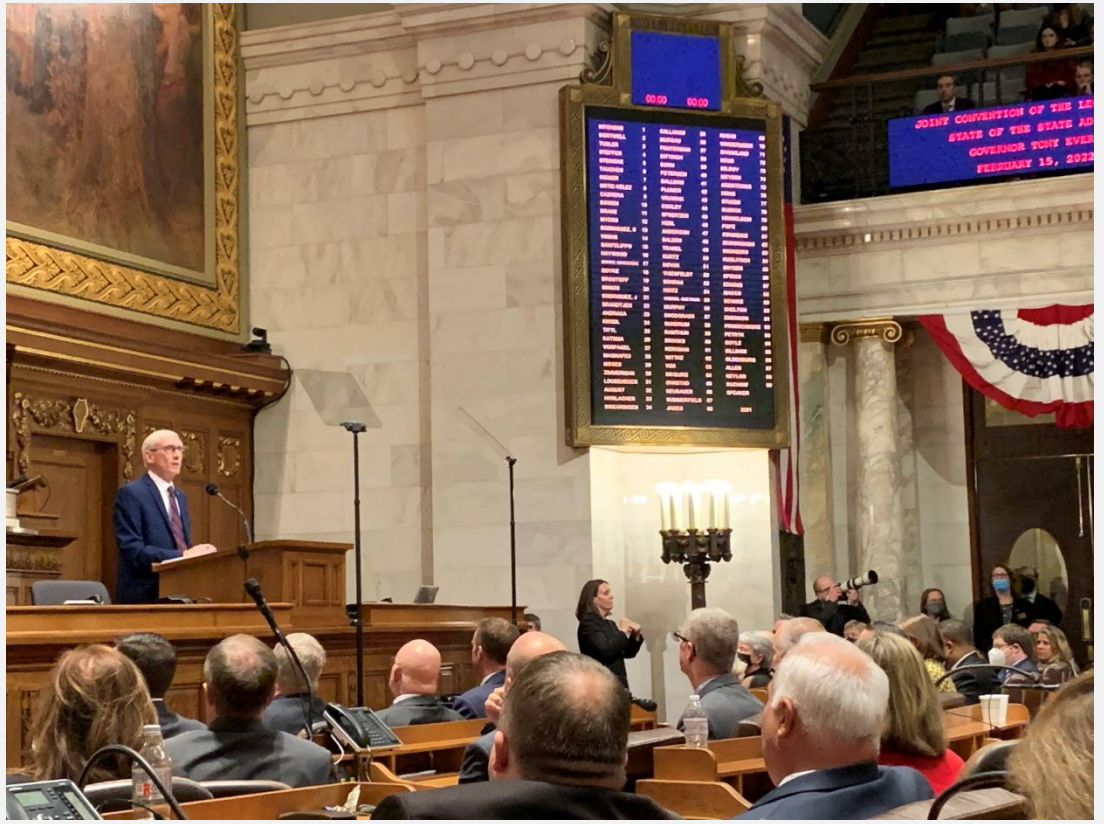
Opportunity to secure resources to successfully modernize ETF and advance its mission and strategic plan.

Opportunity to communicate ETF's vision to legislative stakeholders.

Provides ongoing funding for ETF to maintain current operations.

Wisconsin Budget Process

- 2-year (biennial) budget
  July 1, 2023 –June 30, 2025
- Culminates in the introduction of the Governor's budget and the Legislature's evaluation and action on the budget (typically 6-8 months).



Biennial Budget Timeline Year 1

April 2022	May-August 2022	September 2022	September-December 2022
• Focus is on modernization and critical resources. Also, technical and minor substantive changes. • Governor and Department of Administration (DOA) issue biennial budget instructions.	• Draft proposals and analyses.	• Staff present ETF's budget request to the Board at September board meeting. • ETF submits budget request to Governor and DOA.	• ETF works with DOA to craft ETF's budget. DOA analyzes ETF budget request, makes modifications and their recommendations to the Governor for possible inclusion in the budget request. • Staff will update Board on the progress.

Biennial Budget Timeline Year 2

Late January-Early February 2023-

- Governor introduces budget to legislature.

February-April 2023

- Joint Finance Committee reviews budget.
  - Board provided detailed summary of budget provisions impacting ETF.
  - JFC holds public hearings across the state; gathers input from constituents, stakeholders, and other interested partners.
  - LFB performs detailed analysis.

April-May 2023

- JFC typically holds several executive sessions to amend and finalize budget.

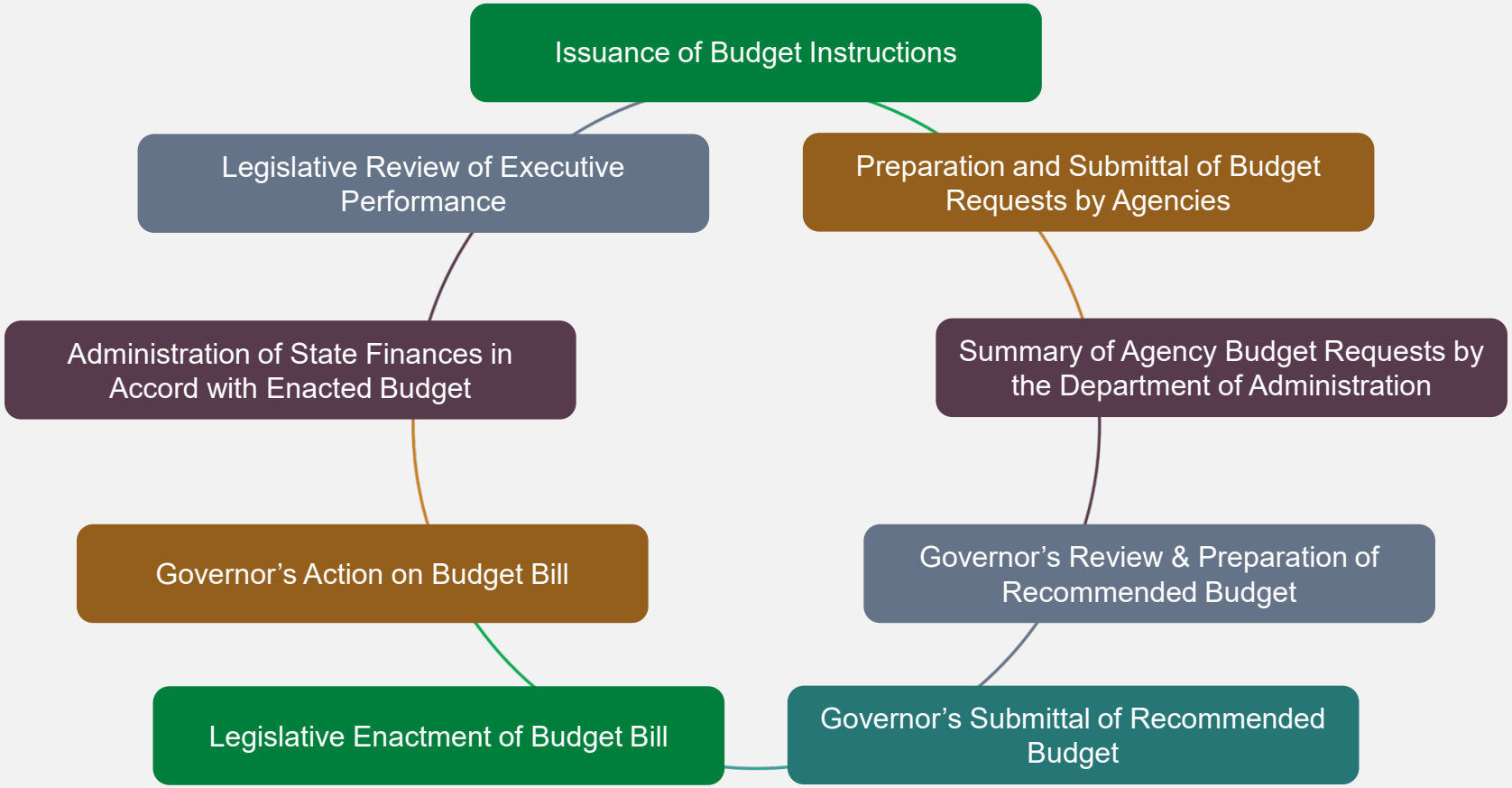
June 2023

- Assembly and Senate review, caucus, amend, and vote on JFC budget.
- If budgets differ, a Conference Committee containing leadership from both houses is formed to produce one Budget Report.

June-August 2023

- Houses vote on Budget.
- Sent to Governor, where vetoes or partial vetoes are made.
- Results in final legislation unless Legislature seeks to override vetoes with 2/3 vote.

Biennial Budget Cycle



Questions?

Thank you

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ETF E-mail Updates

608-266-3285
1-877-533-5020

Operational Updates

Items 5E – 5I - Memo Only

Future Items for Discussion

Item 6A – Employee Trust Funds Board

Closed Session

Item 7 – Secretary's Annual Evaluation and Compensation

Announcement of Action Taken on Business Deliberated During Closed Session

Item 8 – Employee Trust Funds Board

Adjournment

Item 9 – No Memo