



# Preliminary Demographic Experience Study Results

*Presentation to  
LEOFF Plan 2 Retirement Board*

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# Today's Presentation

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- Demographic experience study background
- Key assumption results
  - Retirement, Service-Based Salary Growth, Disability, Termination, Mortality
- Estimated funded status changes
- Informational – No Board action needed today



# What is the Demographic Experience Study?

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- Comprehensive study of non-economic (behavioral) assumptions
  - Required by statute every 6 years
  - Set assumptions to reasonably estimate future plan experience
  - 19 different assumptions across 6 retirement systems
- Preliminary results today – currently under audit
- Additional presentations with Board action later this interim

# Demographic Experience Study Methodology

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Collect and Analyze Study Data

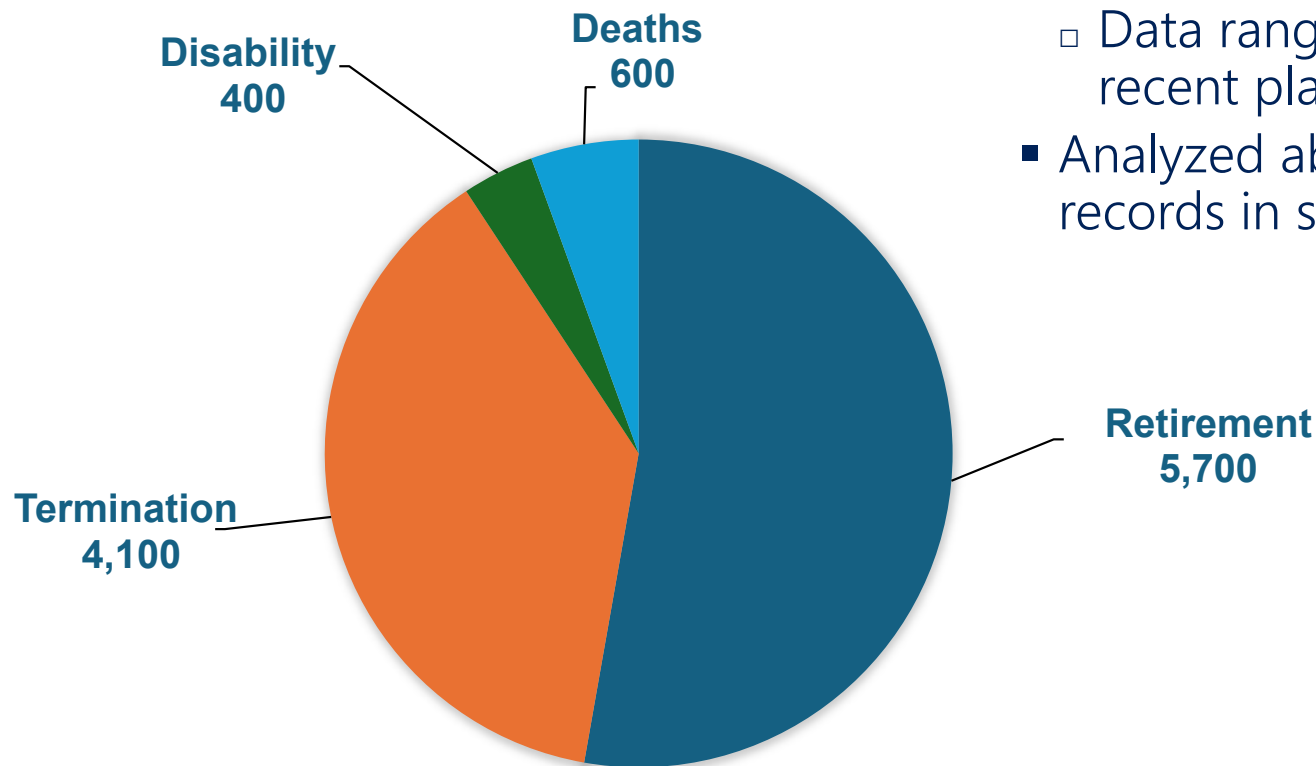
Review Current Assumption Fit

Update Assumptions If Necessary

Present Assumptions for Review and Adoption to Board

# Study Data

## LEOFF 2 Experience Study Data



- Relied on 10 years of valuation data from 2014-2023 to perform study
  - Data range captures the trend in recent plan experience
- Analyzed about 220,000 LEOFF 2 records in study period

# Retirement Rates Overview

## Definition

- ❖ Probability member leaves active employment and starts collecting a pension

## Format

- ❖ Rates vary by age and service
- ❖ Same assumption for both LEOs and FFs

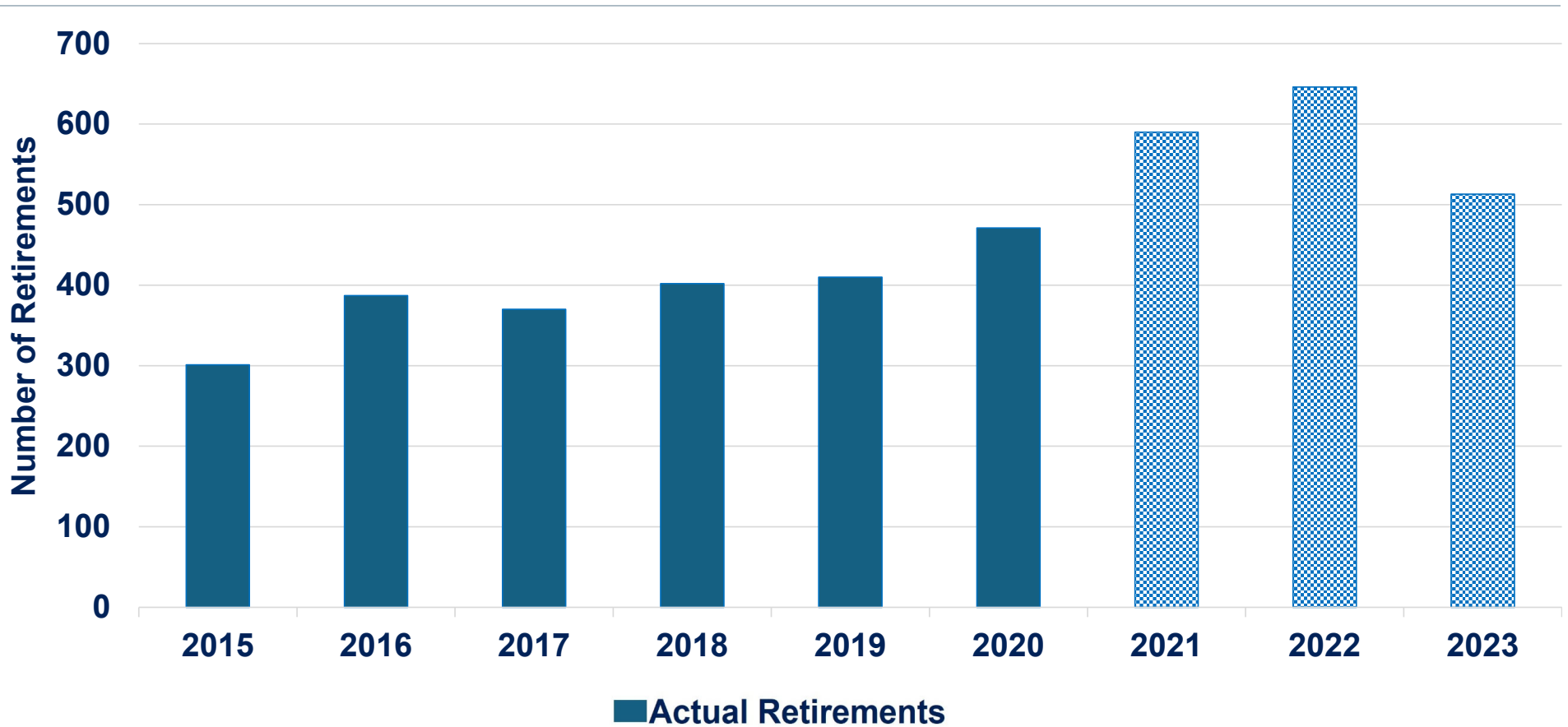
## Observations

- ❖ Significant increase in retirements in 2021-2023
- ❖ Removed this data from our analysis – considered it an outlier

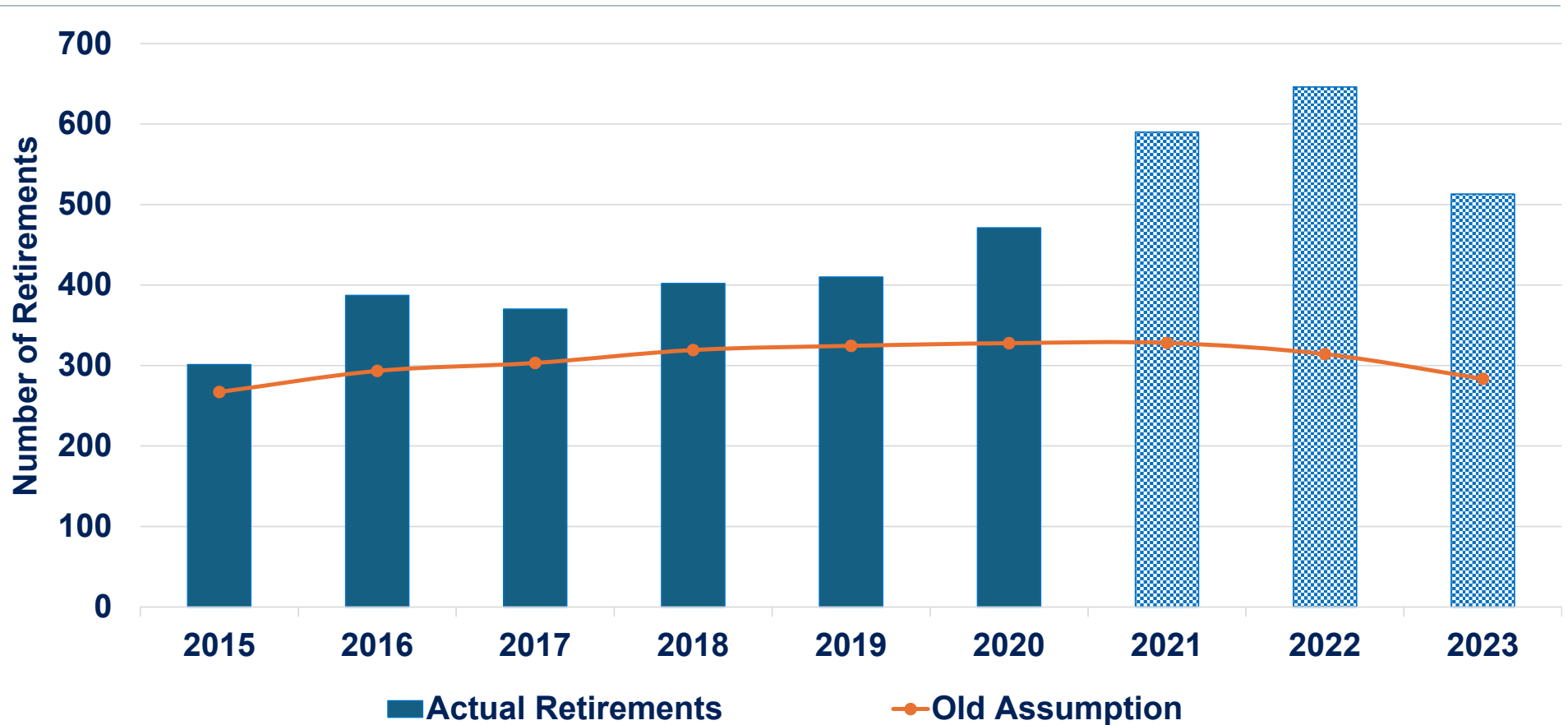
## Key Changes

- ❖ Increased rates for service of 25+ years

# Retirement Data – Service 25+ Years

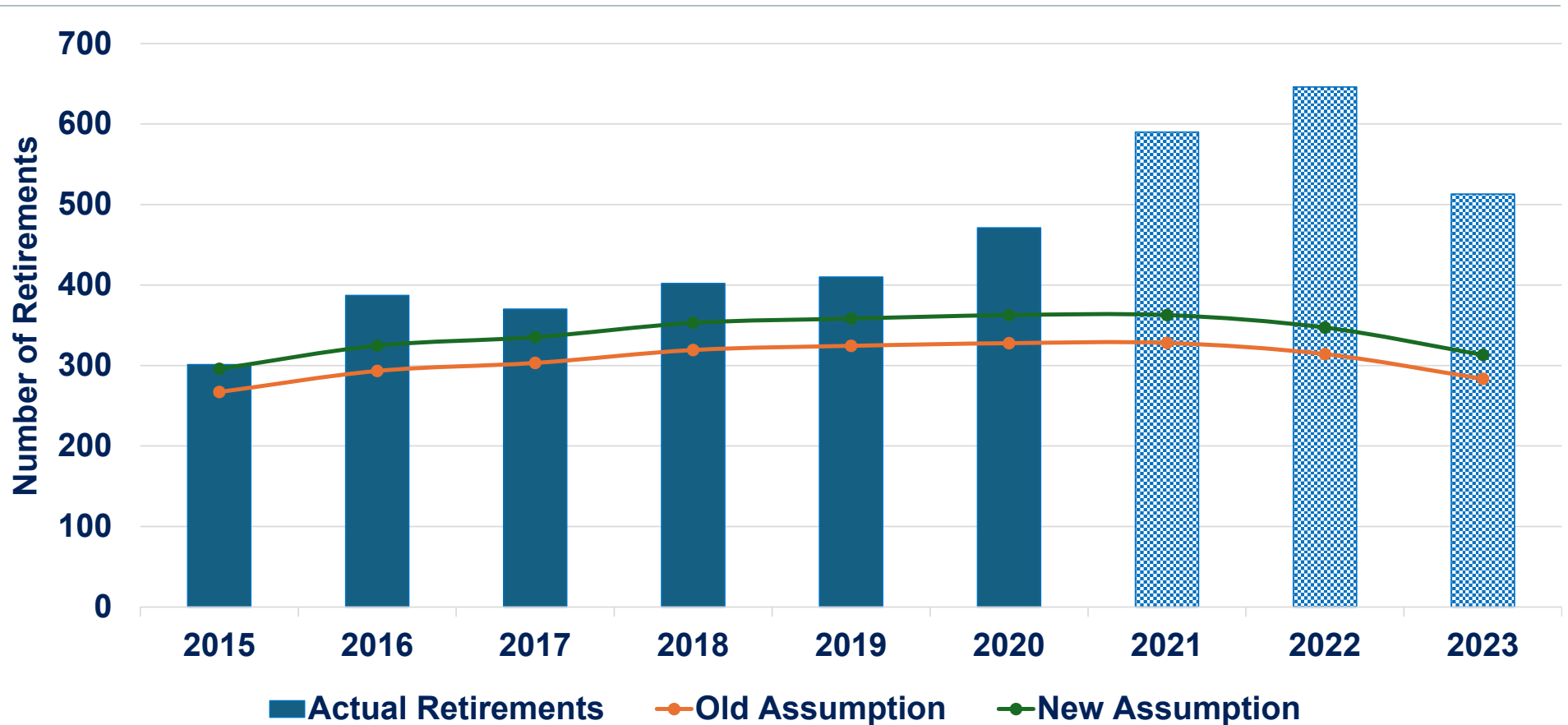


# Retirement Data – Service 25+ Years





# Retirement Data – Service 25+ Years



# Service-Based Salary Growth (SBSG) Overview

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## Definition

- ❖ Combined with the General Salary Growth assumption

## Format

- ❖ Varies by service with higher increases earlier in a member's career

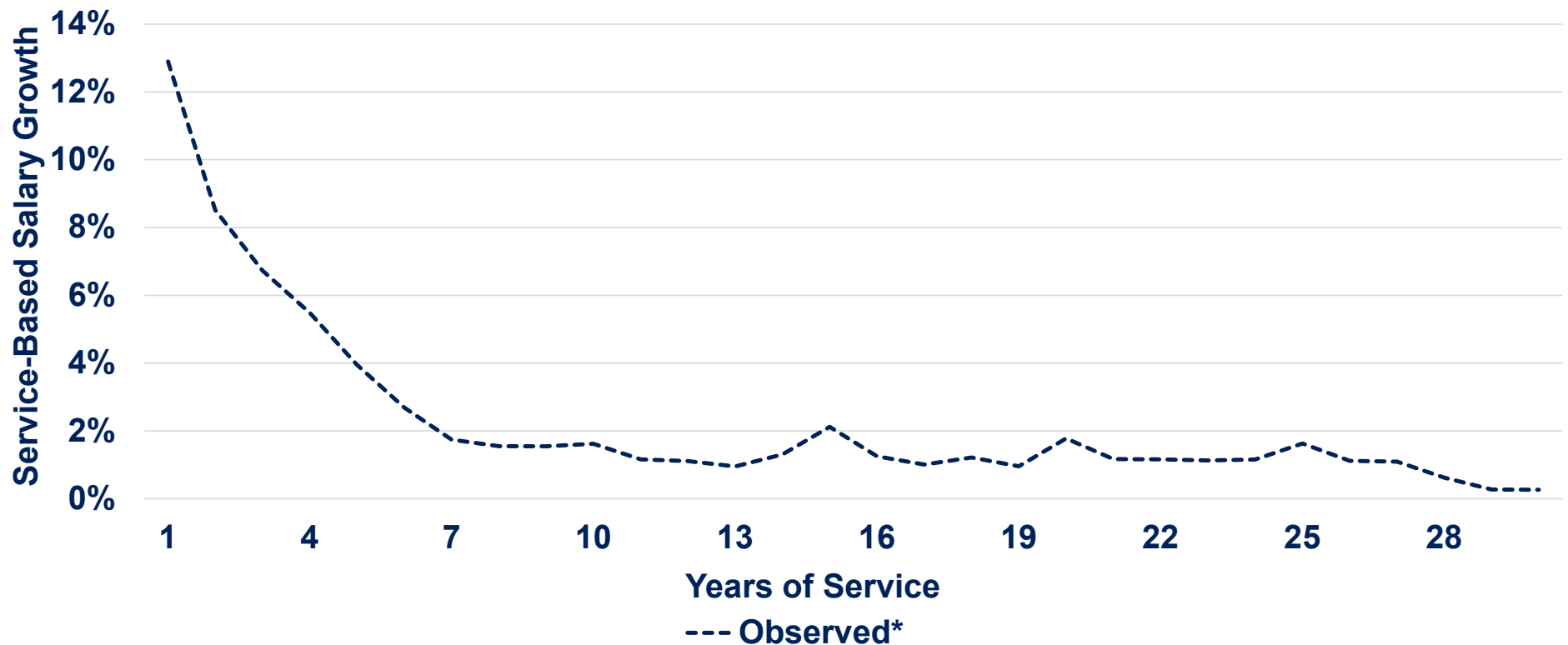
## Observations

- ❖ Higher rates than previously assumed

## Key Changes

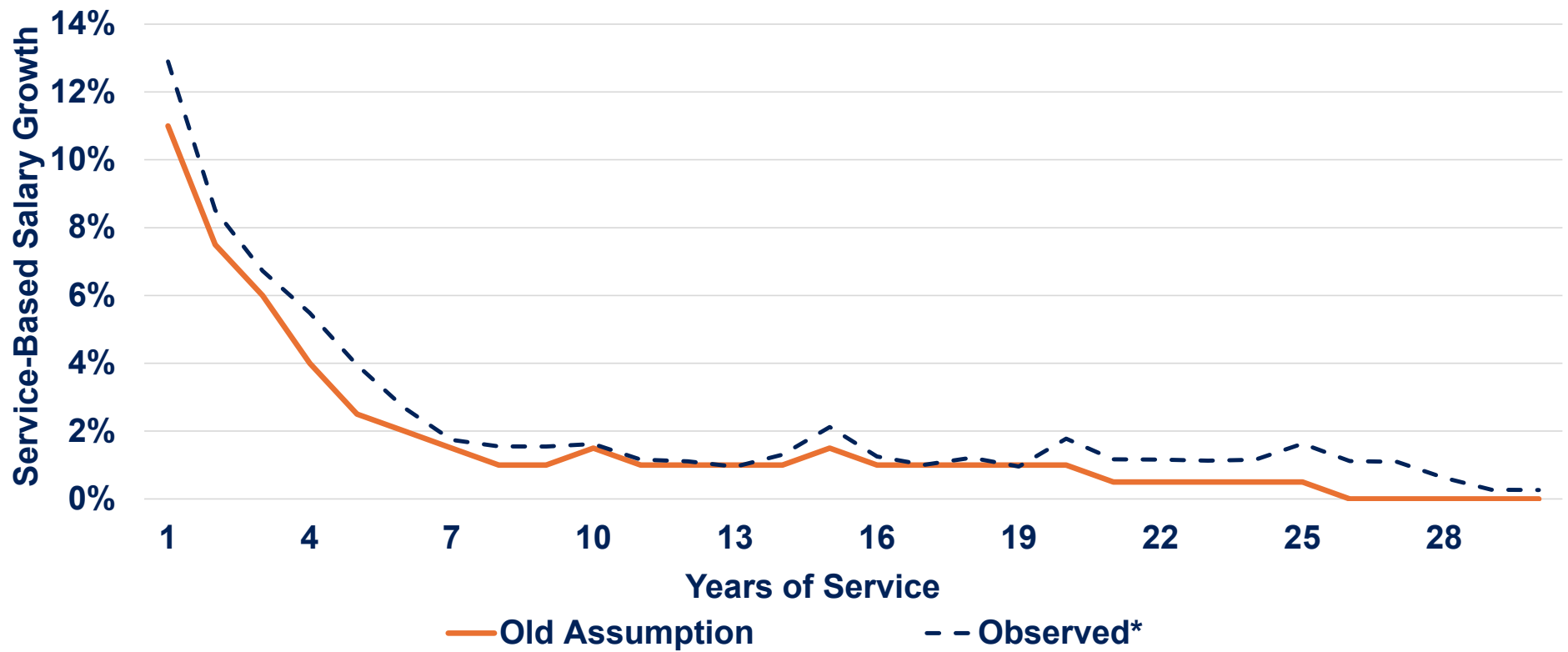
- ❖ Increased rates primarily at low and high service levels

# LEOFF 2 Service-Based Salary Growth



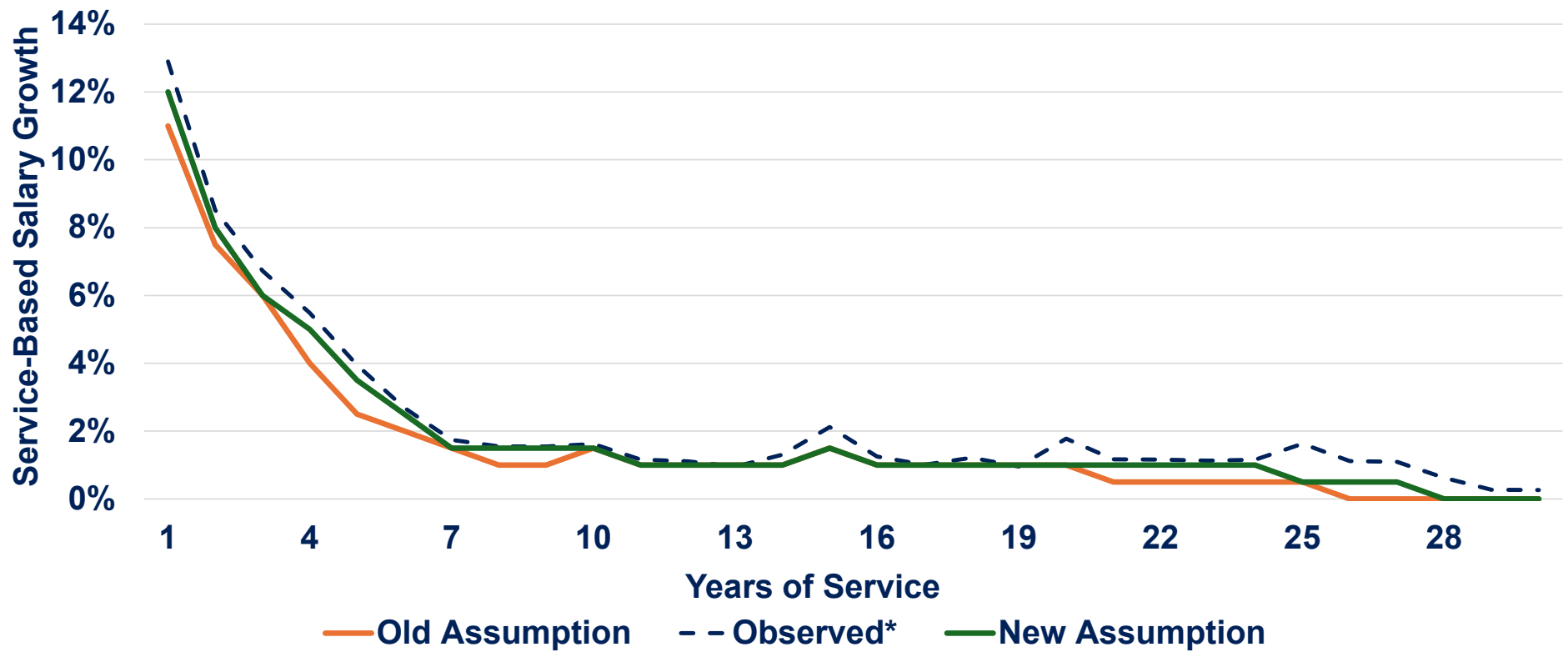
*\*For illustrative purposes, we display the observed service-based salary growth from one of two methods used in this study. Please see the report when available for additional details.*

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# LEOFF 2 Service-Based Salary Growth



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# Disability Rates Overview

## Definition

- ❖ Probability member leaves employment and receives a disability pension

## Format

- ❖ Rates increase by age
- ❖ Duty-related (80%), non-duty (10%), or catastrophic (10%)

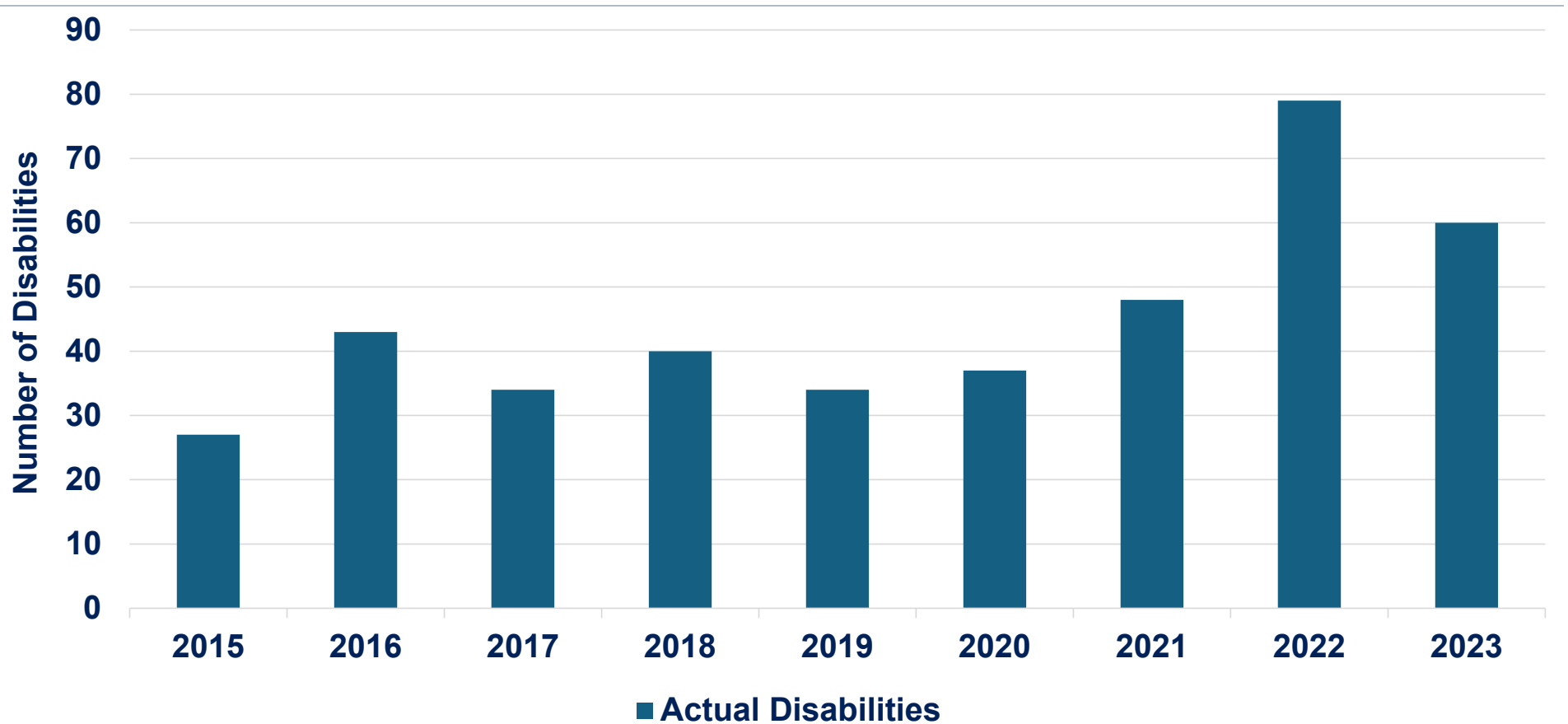
## Observations

- ❖ Significant increase in disabilities in 2022-2023
- ❖ Retained this data in our analysis

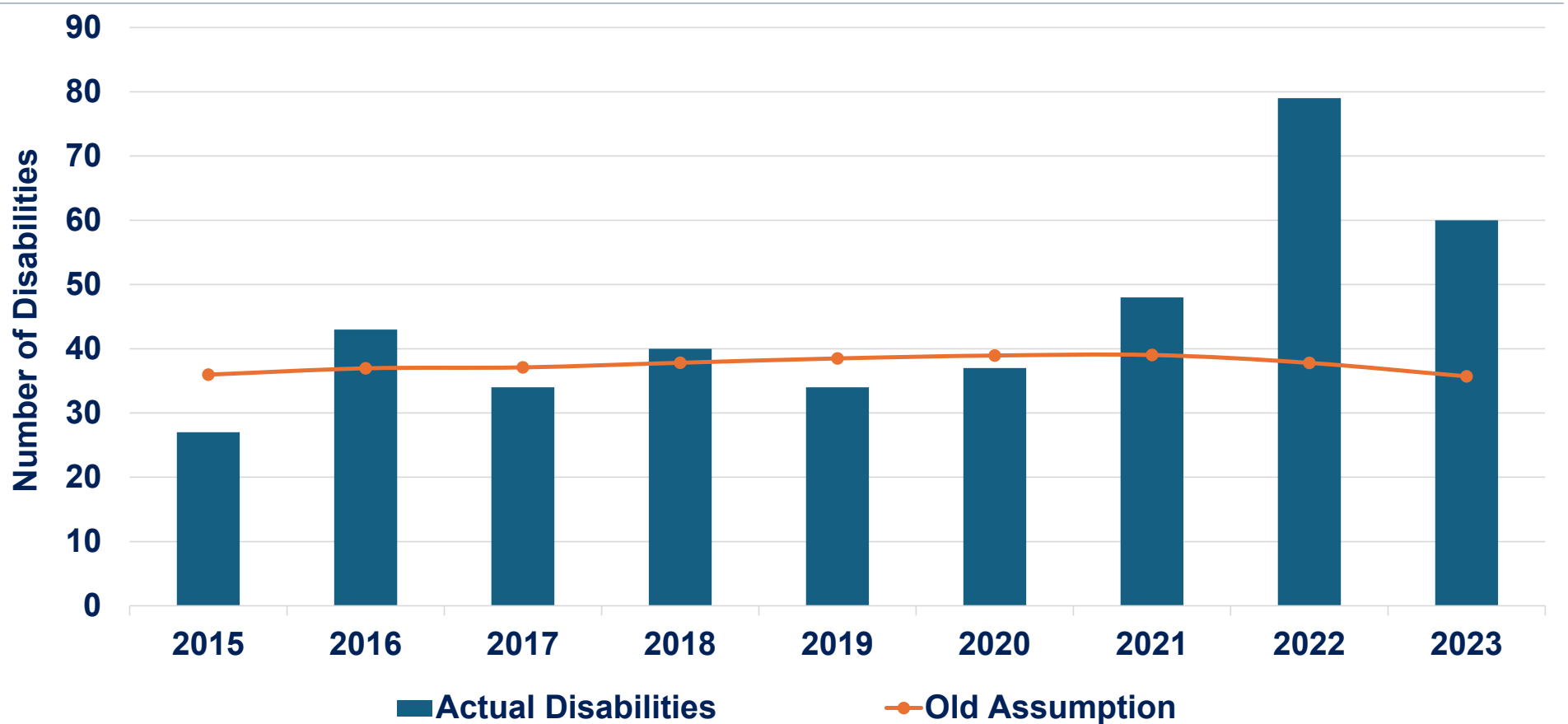
## Key Changes

- ❖ Increased disability rates at all ages
- ❖ No change to assumed disability types

# Disability Data

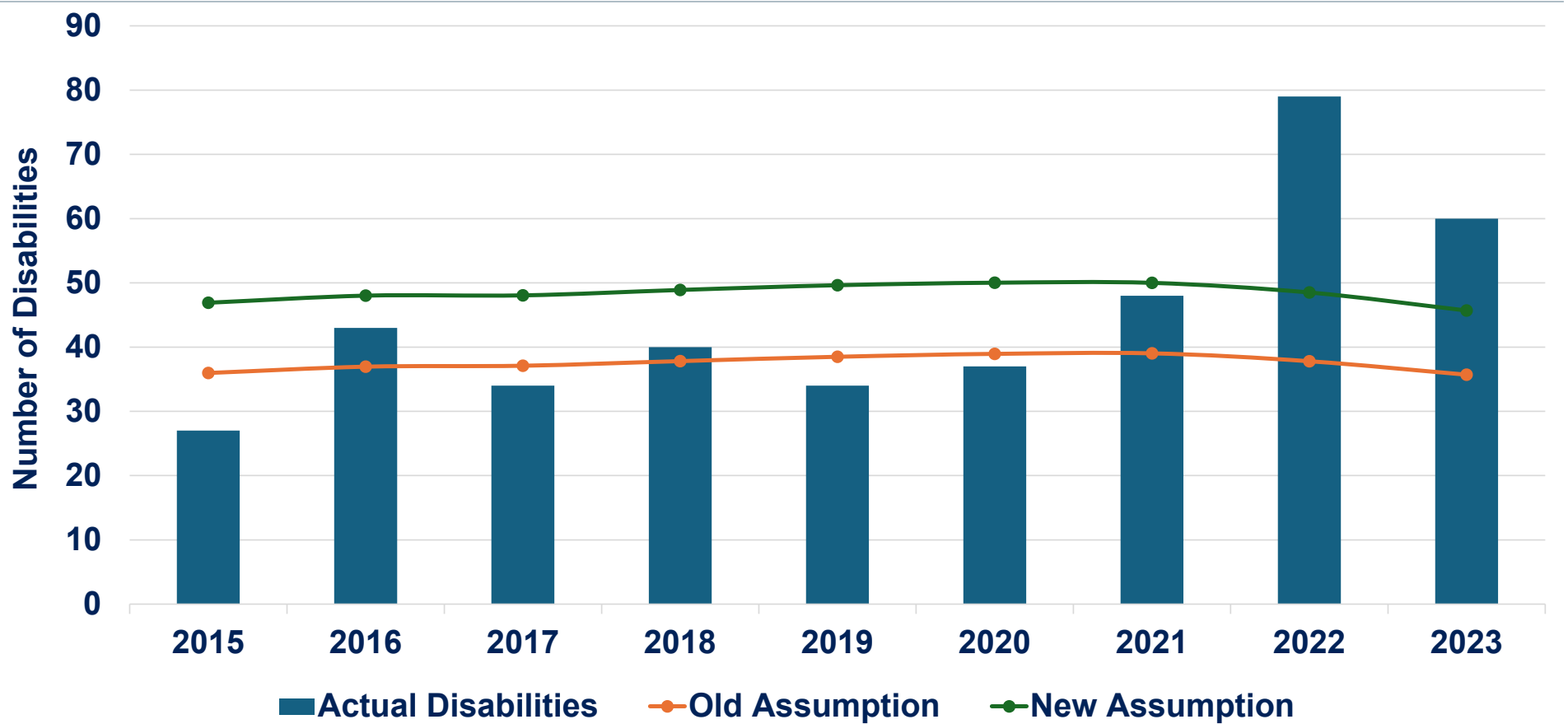


# Disability Data





# Disability Data



# Termination Rates Overview

## Definition

- ❖ Probability member terminates from active service before retirement eligibility

## Format

- ❖ Varies by service level
- ❖ Same assumption for both LEOs and FFs

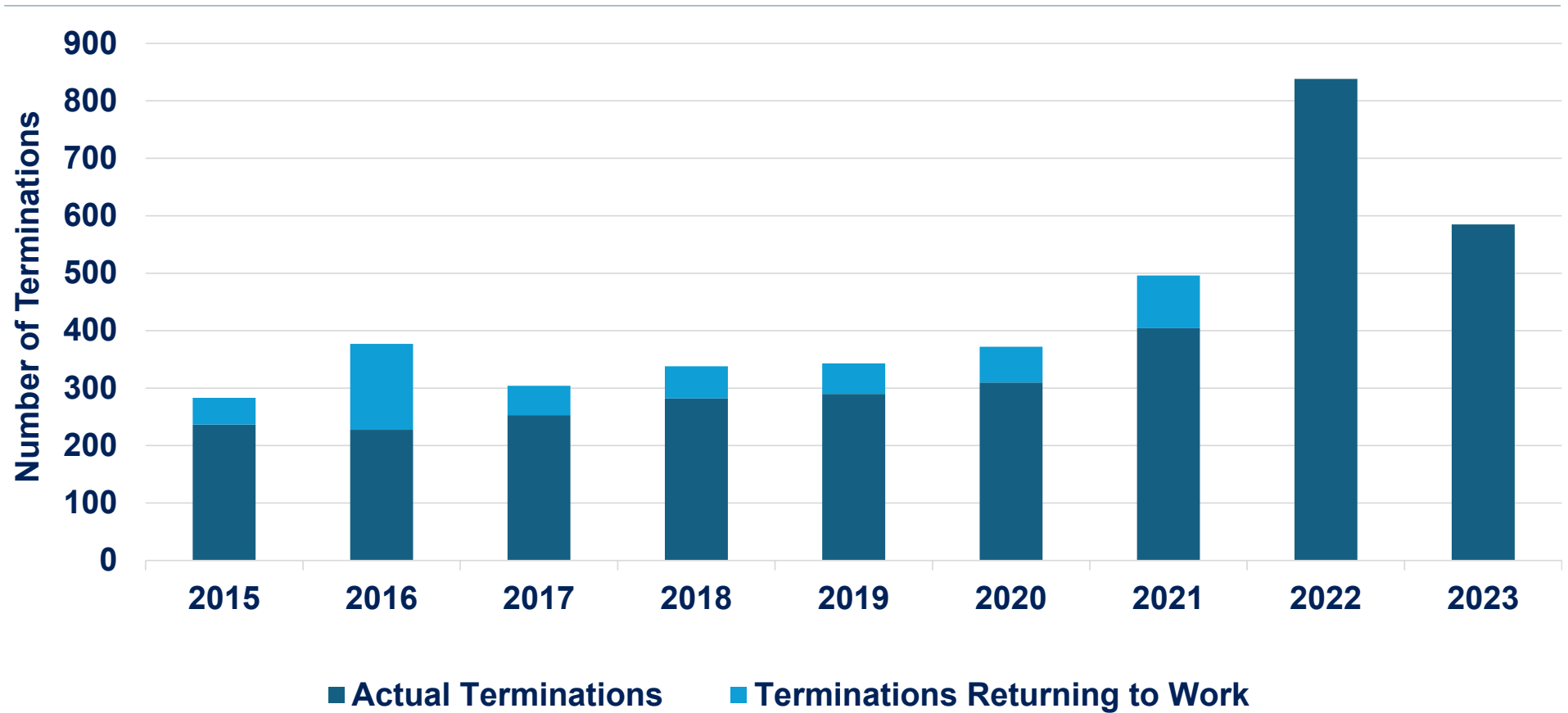
## Observations

- ❖ Higher than expected terminations during study period
- ❖ Excluded 2016 data due to data anomaly and 2022 as an outlier

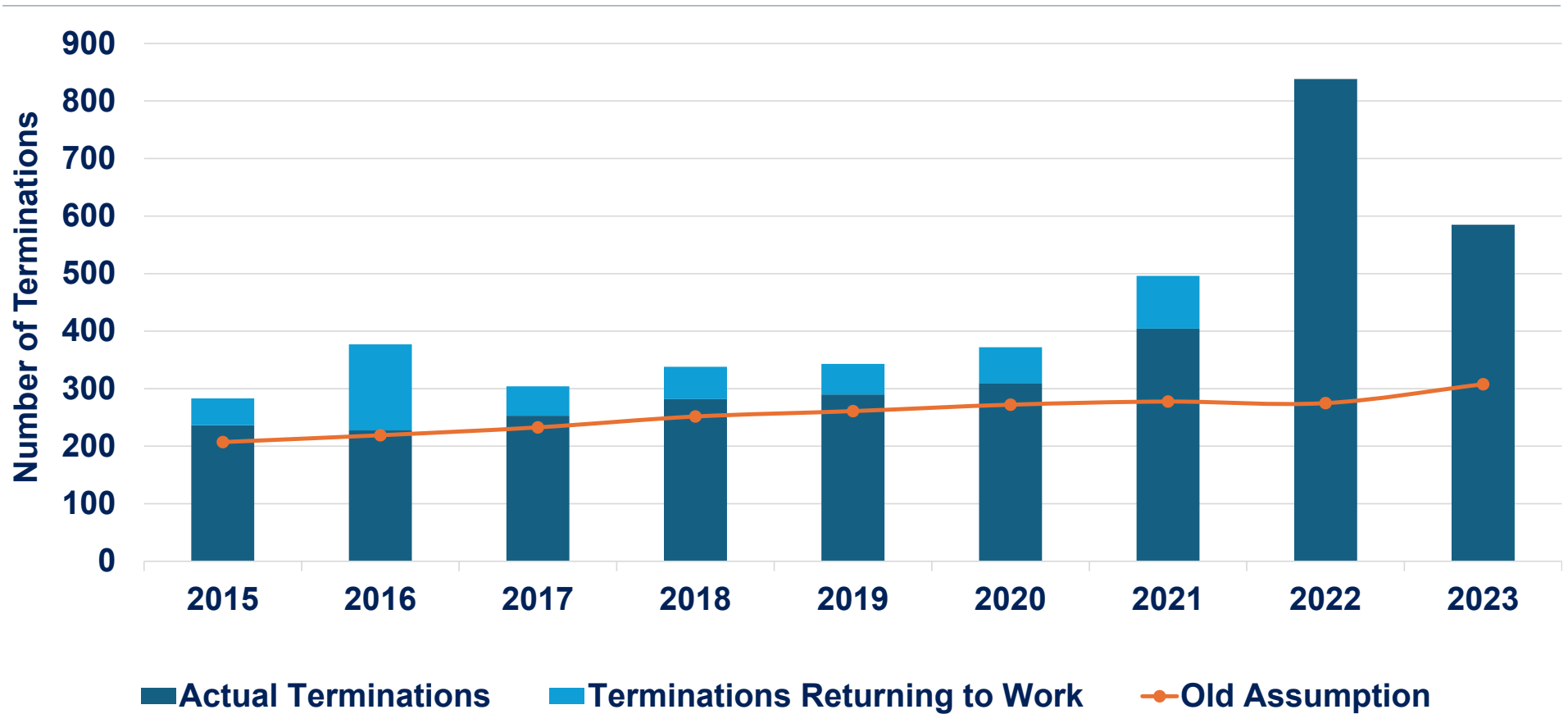
## Changes

- ❖ Increased rates primarily at low and high service levels

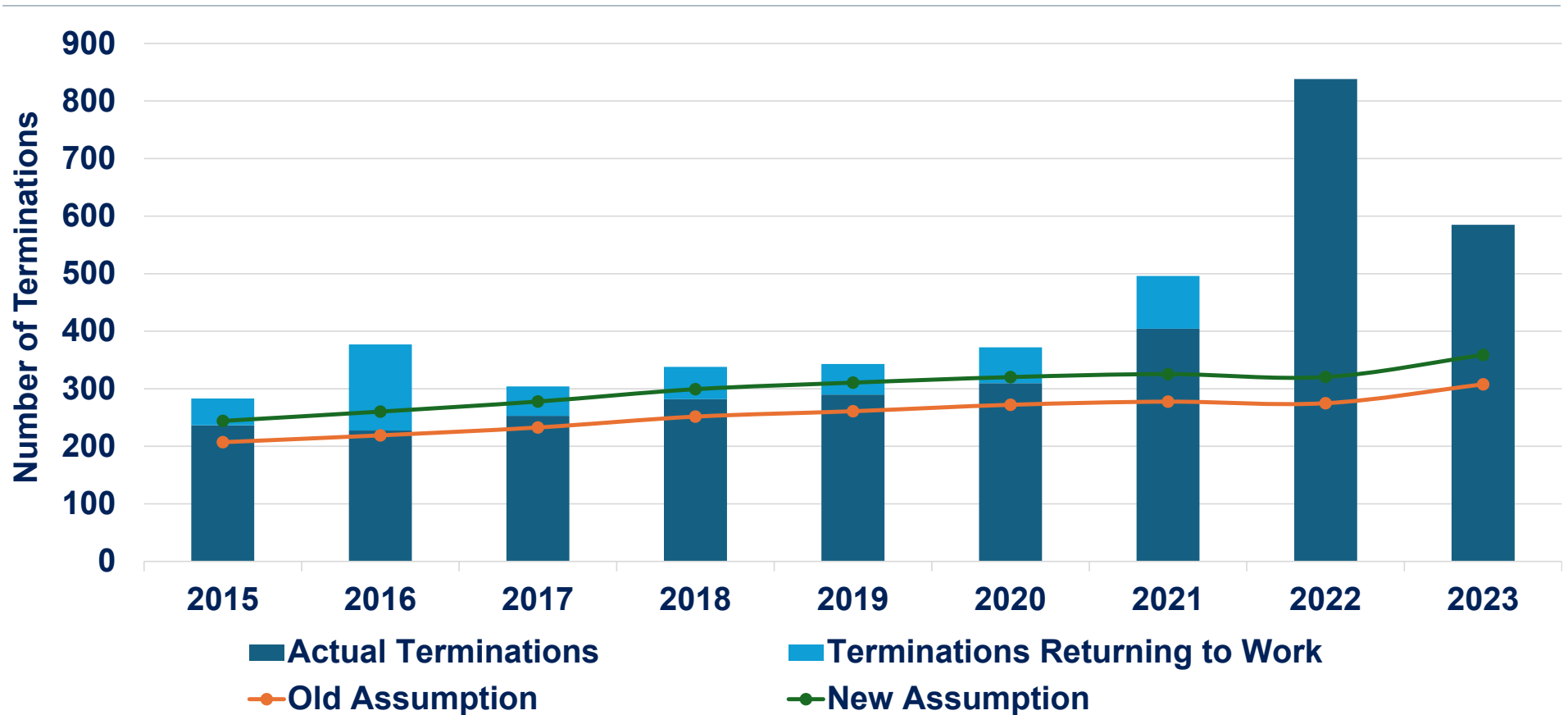
# Termination Data



# Termination Data



# Termination Data



# Mortality Rates

- Used to estimate the future survival (longevity) of plan members and beneficiaries
- Utilizes reports produced by the Society of Actuaries (SOA)
  - DRS data is insufficient to independently develop mortality assumptions
  - Excludes data that would reflect COVID-19 impacts
- 3 Steps to setting assumption



# 1. Selecting Base Mortality Tables

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- Point-in-time mortality rates
- Varies by age, sex, occupation, and retirement status
- Pub-2016 Public Retirement Plans Mortality Tables
  - Data from 41 different public pension systems and 100 plans
  - Time period of 2013–2020
- We selected amounts-weighted public safety tables
  - Based on experience from members with occupations in public safety
  - Produced by placing more weight on observed deaths with higher salaries or benefits

## 2. Selecting a Mortality Improvement Scale

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- Mortality Improvement scales adjust base mortality rates to reflect members living longer in the future
- We selected SOA MP-2021 Ultimate Rates
  - Vary by age
  - Based on national data from Social Security Administration



### 3. Adjustment to Better Reflect LEOFF 2 Experience

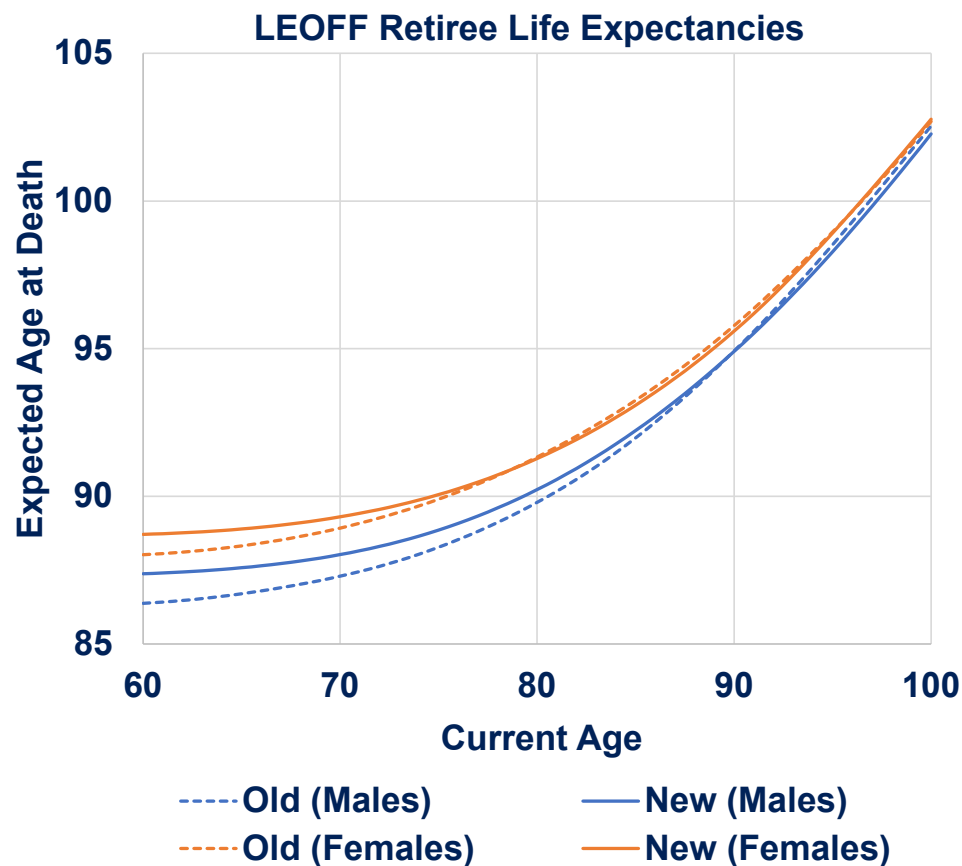
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- We selected a 1-year offset to base mortality rates to better reflect historical LEOFF 2 mortality
  - For example, we would use the mortality rates for age 64 for someone aged 65

Fit of the Selected Pub-2016 Tables to LEOFF Data (2015-2020)	
Pub.S-2016 with No Offset	96%
Pub.S-2016 with 1-Yr Offset	101%

# We Expect LEOFF 2 Members to Live Longer

- Average impact to life expectancy
  - New base mortality tables ↑
  - Moving to amounts-weighted tables ↑
  - New improvement scale ↓
  - LEOFF 2 experience adjustments ↑



# Miscellaneous Assumptions

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- Studied 13 other assumptions related to LEOFF 2
- Examples include
  - Healthcare premium reimbursement for certain retirees and survivors
  - Survivors selecting annuities or a return of contributions
  - Probability a death is duty-related
- In total, the miscellaneous assumption updates resulted in a small savings to the plan

# Funded Status Impacts

Estimated Funded Status Changes	
<b>Projected 2025 Funded Status - Current Assumptions</b>	103%
Estimated Total Demographic Assumption Changes	-4.0% to -2.5%
<b>Projected 2025 Funded Status - Demographic Assumptions</b>	99% to 101%
Estimated Change from Economic Assumptions	1.7%
<b>Projected 2025 Funded Status – New Economic and Demographic Assumptions</b>	100% to 102%

*Totals may not agree due to rounding.*

*Note: The funded status ranges for the demographic assumption impacts were developed from independent estimates on the [2023 AVR](#) and do not include any potential changes to economic assumptions. The actual funded status changes in the 2025 AVR resulting from these assumption changes may fall outside this range.*

# Next Steps

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- Milliman to complete audit of recommended assumptions by the end of the calendar year
- The Board will have the option to adopt the new assumptions at the December meeting
- OSA is available to consult, answer questions, or provide additional information as needed



# Thank You

For questions, please contact  
[The Office of the State Actuary](#)  
360-786-6140  
[State.actuary@leg.wa.gov](mailto:State.actuary@leg.wa.gov)

Mitch DeCamp and Sarah Baker

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# Appendix

# New Assumptions

LEOFF 2 Retirement Rates				
Age	Old Assumption		New Assumption	
	Service Less than 25 Years	Service 25+ Years	Service Less than 25 Years	Service 25+ Years
50	0.03	0.03	0.03	0.03
51	0.03	0.03	0.03	0.03
52	0.05	0.05	0.05	0.05
53	0.09	0.10	0.08	0.12
54	0.09	0.10	0.08	0.12
55	0.09	0.10	0.09	0.12
56	0.09	0.10	0.09	0.12
57	0.10	0.11	0.10	0.15
58	0.14	0.15	0.13	0.15
59	0.15	0.17	0.13	0.17
60	0.15	0.17	0.13	0.17
61	0.19	0.21	0.17	0.21
62	0.23	0.25	0.17	0.25
63	0.20	0.22	0.20	0.25
64	0.20	0.22	0.30	0.25
65	0.30	0.30	0.35	0.35
66	0.30	0.30	0.30	0.35
67	0.30	0.30	0.30	0.30
68	0.30	0.30	0.30	0.30
69	0.30	0.30	0.30	0.30
70	1.00	1.00	1.00	1.00

LEOFF 2 Disability Rates		
Age	Old Assumption	New Assumption
<25	-	-
25-29	0.0001	-
30-34	0.0002	-
35-39	0.0010	0.0010
40-44	0.0010	0.0020
45-49	0.0020	0.0030
50-54	0.0040	0.0050
55-59	0.0060	0.0070
60-64	0.0070	0.0080
65+	0.0036	0.0080

LEOFF 2 Service-Based Salary Growth Assumptions		
Service Years	Old Assumption	New Assumption
0	11.0%	12.0%
1	11.0%	12.0%
2	7.5%	8.0%
3	6.0%	6.0%
4	4.0%	5.0%
5	2.5%	3.5%
6	2.0%	2.5%
7	1.5%	1.5%
8	1.0%	1.5%
9	1.0%	1.5%
10	1.5%	1.5%
11	1.0%	1.0%
12	1.0%	1.0%
13	1.0%	1.0%
14	1.0%	1.0%
15	1.5%	1.5%
16	1.0%	1.0%
17	1.0%	1.0%
18	1.0%	1.0%
19	1.0%	1.0%
20	1.0%	1.0%
21	0.5%	1.0%
22	0.5%	1.0%
23	0.5%	1.0%
24	0.5%	1.0%
25	0.5%	0.5%
26	0.0%	0.5%
27	0.0%	0.5%
28	0.0%	0.0%
29	0.0%	0.0%
30+	0.0%	0.0%



# New Assumptions

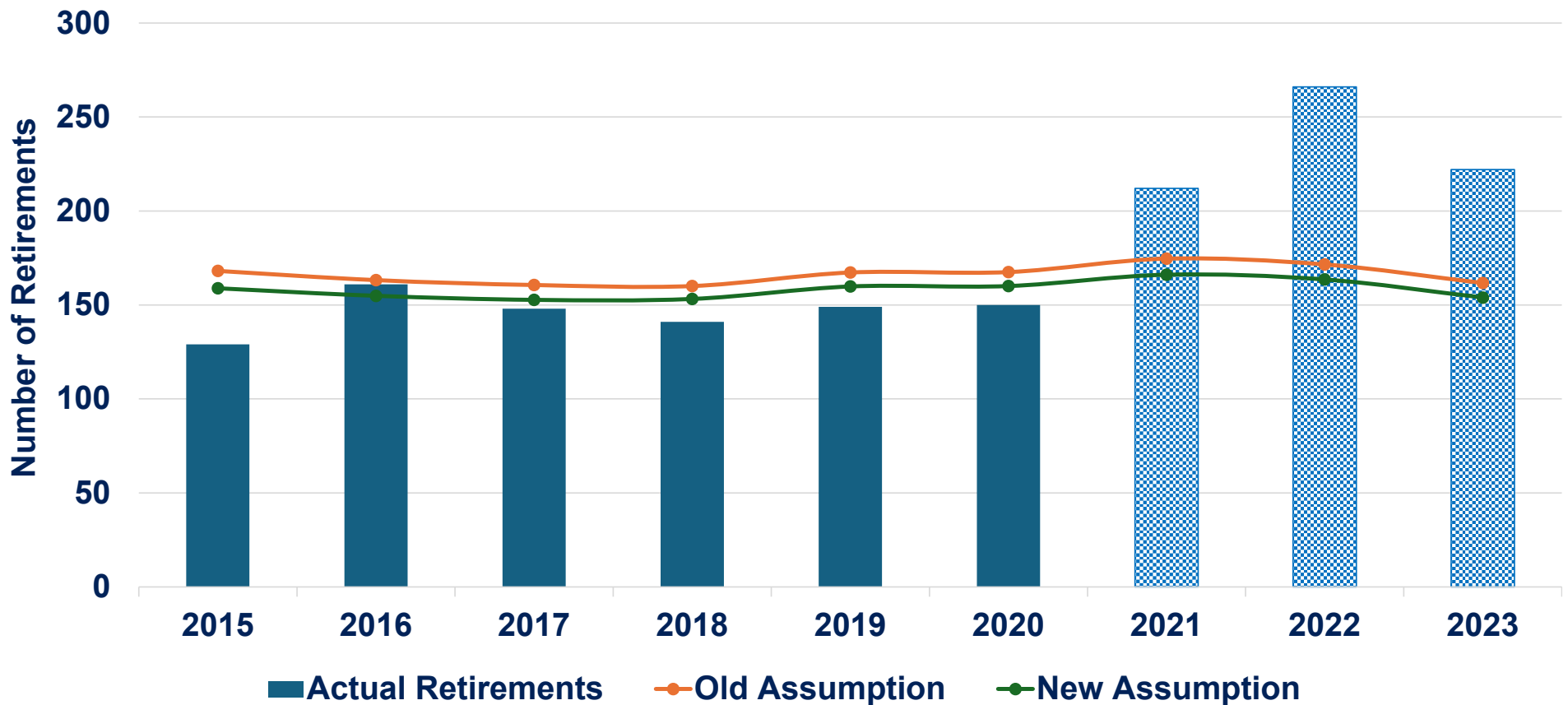
## Mortality Assumption

- Old mortality assumption
  - Base Tables: [PubS.H-2010](#)
    - Apply a 1 year offset to male members
  - Mortality Improvement Scale: [MP-2017 Ultimate Rates](#)
- New mortality assumption
  - Base Tables: [PubS-2016](#)
    - Apply a 1 year offset to all members
  - Mortality Improvement Scale: [MP-2021 Ultimate Rates](#)

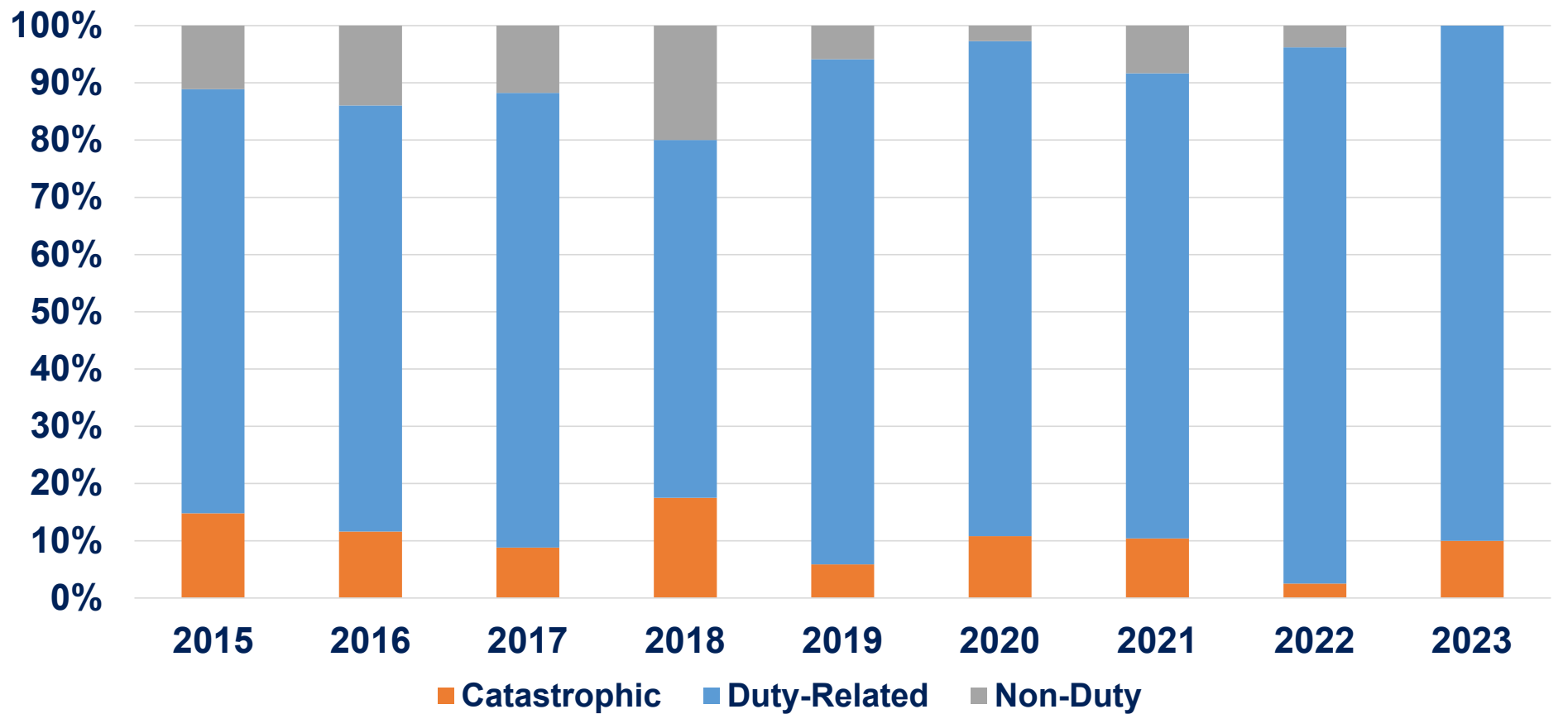
Termination Rates by Service Years for Non-Retirement Eligible Members		
LEOFF 2		
Service Years	Old Assumption	New Assumption
0	10.5%	11%
1	5.0%	6%
2	2.5%	3%
3	2.0%	3%
4	2.0%	2%
5	2.0%	2%
6	2.0%	2%
7	1.5%	2%
8	1.5%	2%
9	1.5%	2%
10	1.5%	2%
11	1.0%	2%
12	1.0%	1%
13	1.0%	1%
14	1.0%	1%
15	1.0%	1%
16	1.0%	1%
17	1.0%	1%
18	1.0%	1%
19	1.0%	1%
20+	1.0%*	1%

\*Old assumption reduces to 0.5% for service year 21 and thereafter.

# Retirement Data – Service Less than 25 Years



# LEOFF 2 Disablements by Category



# Disclosure

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- This presentation is based on the Preliminary results from the *2023 Demographic Experience Study*. Please see [our website](#) for the full report when available containing the study assumptions, methods, and data used to produce the results in this presentation.
- We prepared the estimated range of funded status impacts resulting from the new demographic assumptions based on independent pricing on the 2023 AVR. Otherwise, the pricing relied on the same assumptions, methods, and data. Actual changes to funding status from updates to the demographic assumptions may fall outside this range.
- Please see the *State Actuary's Recommendation on Long-Term Economic Assumptions* presentation provided to the Board on September 24, 2025, for the data, assumptions, methods, and applicable disclosures on the projected 2025 funded status.
- Mitch DeCamp, ASA, MAAA and Sarah Baker, ASA, MAAA served as the reviewing and certifying actuaries for the material in this presentation and meet the qualification standards of the American Academy of Actuaries to render the actuarial opinions provided.