

# **Energy Employees Occupational Illness and Compensation Act (EEOICPA)**

## **Liability Estimate**

Liability Estimate as of September 30, 2024

**Office of Workers' Compensation Programs**

**U.S. Department of Labor**

Report Date: September 26, 2024

---

# Table of Contents

Introduction .....	3
Executive Summary.....	4
Actual vs Projected .....	9
Number of Initial Awards.....	9
The EEOICPA Liability Model.....	10
1: Organize and aggregate the data.....	11
2: Estimate the number of future Initial awards .....	12
3: Estimate the average compensation payment per case.....	17
4: Payout patterns.....	18
5: Estimate the number of individuals eligible for medical benefits .....	19
6: Remove double counting.....	20
7: Mortality .....	22
8: Estimate the Number of Individuals eligible for medical benefits .....	23
9: Estimate Average Medical Payments and Inflation Rates .....	25
10: Calculate the total expected Medical Payment by year .....	26
11: Discount the cash flows to 9/30/2024.....	27
Appendix 1: Hindsight Opinion .....	28
Appendix 2: Summary of EEOICPA Model Assumptions .....	29
Appendix 3: Part E Compensation Payments .....	31
Appendix 4: Undiscounted Liability Estimates and Annual Projections .....	38
Appendix 5: External Actuarial Review .....	42-56

# Introduction

The Energy Employees Occupational Illness Compensation Program Act (“EEOICPA”) provides compensation and medical benefit payments to claimants employed in various energy-related activities either directly for the Department of Energy (“DOE”) or through its contractors or subcontractors. Eligible claimants also include survivors of deceased workers who otherwise would have been eligible for benefit payments.

The Office of Workers’ Compensation Programs (“OWCP”) at the U.S. Department of Labor maintains a model to estimate the future payments of the EEOICPA program. The model is updated annually, and is documented, tested, and reviewed internally and externally.

The purpose of this valuation report is to document the Energy Employees’ Occupational Illness Compensation Program (“EEOICP” or “Energy Workers Program”) actuarial liability estimate and the change in the actuarial liability. The U.S. Department of Labor uses this estimate in preparing the consolidated financial statements, as of and for the fiscal year ended September 30, 2024, in accordance with U.S. generally accepted accounting principles, as promulgated by the Federal Accounting Standards Advisory Board and all relevant Actuarial Standards of Practice.

OWCP additionally contracts an external consulting actuarial firm, Lepton Actuarial & Consulting, (“the external actuary”) to review the reasonableness of the actuarial liability model’s inputs and assumptions, ensure that the calculations in the model are mathematically correct, and opine on a reasonable range of actuarial estimates. A copy of that review is included in Appendix 5.

As is true with any actuarial estimate, actual future payments may differ significantly from the estimates presented herein. The level of difference between the actual results and these projections could potentially be substantial and could be in either direction.

## Executive Summary

Part B of EEOICPA, effective July 31, 2001, provides lump sum compensation of \$150,000 and medical expenses to employees of the Department of Energy (“DOE”), or its contractors or subcontractors, among others, who develop cancer, beryllium disease, or chronic silicosis after working at a covered facility. If the employee is no longer living, compensation benefit payments may be available to survivors. Part B also covers certain classes of employees under a Special Exposure Cohort (“SEC”). A worker who is diagnosed with one of 22 specified cancers and worked for a specified period of time at one of the SEC work sites may receive a presumption of causation under the EEOICPA. The National Institute for Occupational Safety and Health (“NIOSH”) has responsibility for designating additional classes to the SEC.

Part E of the Act, effective October 28, 2004, provides wage loss, impairment benefit, and medical expenses to DOE contractors, subcontractors, and uranium miners, millers, and ore transporters as defined by the Radiation Exposure Compensation Act (“RECA”) Section 5, who develop an illness due to exposure to toxic substances at certain DOE worksites. Part E also pays survivor benefits to certain survivors. Part E pays a maximum compensation amount of \$250,000 per case.

As of 9/30/2024, the discounted liability estimate for future EEOICPA benefit payments is \$84.3 billion. The future compensation payments are projected at \$9.0 billion, and the future medical payments are projected at \$75.3 billion, on a discounted basis. This is a 24% increase over the 9/30/2023 liability estimate of \$67.8 billion, driven mainly by an increase in estimated future home health care payments.

**TABLE 1**  
**ESTIMATED EEOICPA LIABILITY**

**SUMMARY OF LIABILITY FOR FUTURE PAYMENTS**  
**(*\$ billions*)**

	Discounted Liability Estimate		Difference	
	as of 9/30/2024	as of 9/30/2023	\$	%
Compensation: Part B	\$ 2.3	\$ 2.6	\$ (0.3)	-12.0%
Compensation: Part E	6.7	8.9	(2.2)	-24.6%
Compensation: Total	9.0	11.5	(2.5)	-21.8%
Medical Payments	75.3	56.3	19.0	33.8%
Total Future Payments	\$ 84.3	\$ 67.8	\$ 16.5	24.4%

The discount rates used for the 9/30/2024 estimate were 2.465% for compensation and 2.939% for medical. The totals may not equal the sum of the components, due to independent rounding.

The \$67.8 billion estimate as 9/30/2023 included an estimated \$149 million for future payments to be made by the Department of Justice (DOJ) for RECA Section 5 claimants. At the request of the Congressional Budget Office and the EEOICPA Program, as of 9/30/2024 the estimated DOJ RECA Section 5 payments are no longer being reflected in the EEOICPA report. See page 42 for additional details.

## **Uncertainty around the actuarial estimates**

The Energy Workers Program is a unique program and has wider range of uncertainty around the liability estimate than may be observed with other workers' compensation programs.

The liability estimate of \$84.3 billion represents our best professional judgment of the valuation of future payments given the information currently known. We would like to include, for context, that our external actuary has estimated a range of \$73.6 billion to \$101.8 billion (see Appendix 5) as the range of reasonable estimates. The range of reasonable estimates indicates potential liability estimate amounts that other actuaries analyzing the same set of data may be likely to produce.

In other workers' compensation programs, the universe of potential claimants (i.e., the number of employees covered by the program) is generally known and the covered employees are generally aware that a workers' compensation system exists should the employee become injured or contract a disease. For the Energy Workers Program, although the program itself was enacted in 2001, the exposure period for the program begins in the 1930s and continues to present day. The employees covered by the program encompass a broad range of employers and participants including DOE employees, DOE contractors, subcontractors of DOE contractors, beryllium vendors, atomic weapons employers, uranium miners and millers and iron ore transporters. We do not have full employment statistics available to estimate the total number of employees covered. Additionally, it is not clear what percent of the employees and survivors of the employees are aware of the existence of the program. The Energy Workers Program continues to conduct in-person outreach sessions to provide awareness of the program to former workers. To date, applications have been filed representing over 143,000 individual workers.

That being said, we do have over 20 years of available data for these individual workers, including dates of award and payments made, along with guidance from the EEOICPA program, that we utilize to inform our judgment about likely trends in the future.

**Table 2**  
**Projections by Fiscal Year**

	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035-2084	Total 2025-2084
<b>Estimated Payments (\$millions)</b>													
Compensation Part B .....	\$ 249	\$ 230	\$ 219	\$ 202	\$ 186	\$ 171	\$ 157	\$ 145	\$ 134	\$ 123	\$ 114	\$ 1,163	\$ 2,843
Compensation Part E .....	528	490	497	495	484	470	454	436	405	386	367	4,301	8,785
Medical Payments .....	1,980	2,238	2,462	2,685	2,895	3,092	3,249	3,389	3,510	3,614	3,699	94,544	125,377
<b>Total Payments</b>	<b>\$ 2,757</b>	<b>\$ 2,958</b>	<b>\$ 3,178</b>	<b>\$ 3,382</b>	<b>\$ 3,565</b>	<b>\$ 3,732</b>	<b>\$ 3,860</b>	<b>\$ 3,969</b>	<b>\$ 4,049</b>	<b>\$ 4,123</b>	<b>\$ 4,180</b>	<b>\$ 100,009</b>	<b>\$ 137,004</b>
<b>Estimated Number of Initial Awards</b>													
Part B .....	1,773	1,633	1,554	1,423	1,294	1,181	1,081	992	912	840	775	7,858	19,543
Part E .....	3,120	3,120	3,104	2,908	2,682	2,474	2,282	2,105	1,941	1,791	1,652	16,027	40,085
<b>Discount Factors</b>													
Compensation .....	na	0.988	0.964	0.941	0.918	0.896	0.875	0.854	0.833	0.813	0.793	0.638	0.775
Medical .....	na	0.986	0.957	0.930	0.904	0.878	0.853	0.828	0.805	0.782	0.759	0.517	0.601
<b>Discounted Payments (\$millions)</b>													
Compensation Part B .....	na	\$ 227	\$ 211	\$ 190	\$ 170	\$ 153	\$ 137	\$ 124	\$ 111	\$ 100	\$ 90	\$ 759	\$ 2,273
Compensation Part E .....	na	484	479	466	444	421	397	372	337	314	292	2,728	6,734
Medical Payments .....	na	2,206	2,357	2,498	2,616	2,714	2,770	2,807	2,825	2,825	2,809	48,866	75,293
<b>Total Discounted Payments</b>	<b>na</b>	<b>\$ 2,917</b>	<b>\$ 3,047</b>	<b>\$ 3,154</b>	<b>\$ 3,231</b>	<b>\$ 3,288</b>	<b>\$ 3,305</b>	<b>\$ 3,303</b>	<b>\$ 3,273</b>	<b>\$ 3,239</b>	<b>\$ 3,191</b>	<b>\$ 52,353</b>	<b>\$ 84,300</b>

**Table 3**  
**Reconciliation of Change in Liability Estimate**  
(\$ billions)

Discounted Liability Estimate as of 9/30/2023 .....	\$67.8
1. Fiscal year 2024 roll off of estimate .....	(2.4)
2. Discount to 9/30/2024 instead of 9/30/2023 .....	1.9
3. 2024 medical payments greater than projected .....	11.7
4. Increase in estimated long-term medical inflation rates .....	7.5
5. Increase in estimated short-term medical inflation rates .....	5.6
6. Higher discount rates in the 9/30/2024 model .....	(4.7)
7. Decrease in estimated number of future Part E initial awards .....	(1.6)
8. Decrease in estimated Part E ultimate compensation payment .....	(1.3)
9. Combination/other .....	(0.2)
<b>Total Change .....</b>	<b>16.5</b>
<b>Discounted Liability Estimate as of 9/30/2024 .....</b>	<b>\$84.3</b>

Explanation of changes:

**1. Fiscal year 2024 roll off of estimate**

Fiscal year 2024 payments are no longer included in the estimate, since the projection period is as of 9/30/2024.

**2. Discount to 9/30/2024 instead of 9/30/2023**

The 9/30/2023 estimate was discounted to 9/30/2023 and the 9/30/2024 estimate is discounted to 9/30/2024.

**3. 2024 medical payments greater than projected**

In the previous model, fiscal year 2024 medical payments were projected to be \$1.68 billion. The revised projection for fiscal year 2024 medical payments is now \$1.98 billion. Because estimated future medical payments are indexed to the current year, the increase in 2024 payments results in increased estimates for future medical payments as well.

**4. Increase in estimated long-term medical inflation rates**

The estimated long-term medical inflation rates (future years 6-60 in the model) have been increased from 3.9% to 5.0%. The 3.9% inflation rate previously used is an estimated medical inflation rate pertaining to the U.S. general population. The observed medical inflation rates for the EEOICPA program continue to trend higher than the rates for the U.S. general population, so a rate greater than 3.9% was selected in the 2024 model.

**5. Increase in estimated short-term medical inflation rates**

The estimated short-term medical inflation rates (future years 1-5 in the model) have been increased to reflect recently observed inflation rate trends.

**6. Higher discount rates in the 9/30/2024 model**

The rates used to discount future cash flows to present value are higher in the 2024 model than in the 2023 model. The present value of the liability is inversely related to the discount rates, such that higher discount rates result in a lower liability estimate. See page 27 for more information regarding the selection of the discount rates.

**7. Decrease in estimated number of future Part E initial awards**

The number of Part E initial awards in 2024 was lower than projected, and the estimated number of future initial awards has been lowered as well.

**8. Decrease in estimated Part E ultimate compensation payment**

The estimated ultimate Part E compensation payment per case was lowered in the model, to reflect decreased ultimate payments for more recent initial awards. Part E compensation payments are wage loss, impairment, and survivor compensation payments that pay out over time, rather than a one-time payment of fixed amount.

**9. Combination/other**

The impacts of all other changes to the assumptions or actual results are included in this row.

## Actual vs Projected

### Number of Initial Awards

Overall, from 7/1/2023 to 6/30/2024, there were 11% more Part B initial awards and 9% fewer Part E initial awards than what was projected.

**Table 4**  
**Total Number of Initial Awards 7/1/2023 - 6/30/2024**

	Projection as of 9/30/23	Actual	Diff	% Diff
B: RECA Section 5	125	130	5	4%
B: Beryllium Related	56	47	(9)	-17%
B: Chronic Silicosis	384	683	299	78%
B: Cancer (SEC)	726	606	(120)	-17%
B: Cancer Other	284	276	(8)	-3%
Part B Total	1,576	1,742	166	11%
Part E	3,419	3,122	(297)	-9%

### Cash Flow

The revised cash flow projection for fiscal year 2024 is 11% higher than the amount projected as of 9/30/2023. The main driver of the difference is an increase in home health care payments.

**Table 5**  
**Estimated Benefit Payments FY 2024**

	Actual 9 month			
	Projected @9/2023	+ Proj 3 mo	\$ Difference	%Diff
Part B Compensation Payments	\$ 217,160,061	\$ 248,736,899	\$ 31,576,838	15%
Part E Compensation Payments	579,725,412	528,477,237	(51,248,175)	-9%
Medical Payments	1,684,561,961	1,980,000,000	295,438,039	18%
Total	\$ 2,481,447,434	\$ 2,757,214,136	\$ 275,766,702	11%

# The EEOICPA Liability Model

The EEOICPA analysis consists of the following steps:

1. Organize and aggregate the data

## **Compensation Benefit Payments**

2. Estimate the number of future initial awards
3. Estimate the average compensation payout per awarded case
4. Determine the payout patterns to estimate the compensation cash flow by year

## **Medical Benefit Payments**

5. Estimate the percentage of cases eligible for medical benefits
6. Remove double counting – cases can be approved for both Part B and Part E
7. Apply mortality assumptions to determine the number eligible for medical benefits
8. Estimate the number of individuals eligible for medical benefits
9. Estimate the average medical payments and future inflation rates
10. Calculate the total expected medical payments

11. Discount the future payments to 9/30/2024

These steps are described in detail in the next sections.

## 1: Organize and Aggregate the Data

---

The EEOICPA analysis is performed using detailed claim-level data extracts. Data provided includes information on medical payments by case, compensation payments by claim and case, claim disposition status (e.g., approved, denied, pending decision, etc.), and employee data such as date of birth, sex, date of death (if known), and survivor information.

The data provided for this analysis consists of a series of text data files that were imported into a database for further analysis and manipulation. The source data includes the following tables:

Table Name	Description
Bp_history	History of medical payments by case
Case_main	Employee information by case, includes RECA indicator
Causation	All causation records, includes SEC identifier
Claimant	Claim information included type of claim and filing dates
Employment	Employment information for employees, including worksite ID
FD	Final decision table by case, identifies acceptance/denial of filed claims
Medical	Medical information by case, includes disease type
Payment_mart	History of compensation payments by claim

The data was then organized through a series of database queries to create summarized tables of new entrants, compensation payments, medical payments, and claims filed by living employees. These summarized tables are checked against the EEOICP Program Statistics<sup>1</sup> and then brought into the EEOICPA liability model to begin the analysis.

---

<sup>1</sup> <https://www.dol.gov/owcp/energy/regs/compliance/weeklystats.htm>

## 2: Estimate the Number of Future Initial Awards

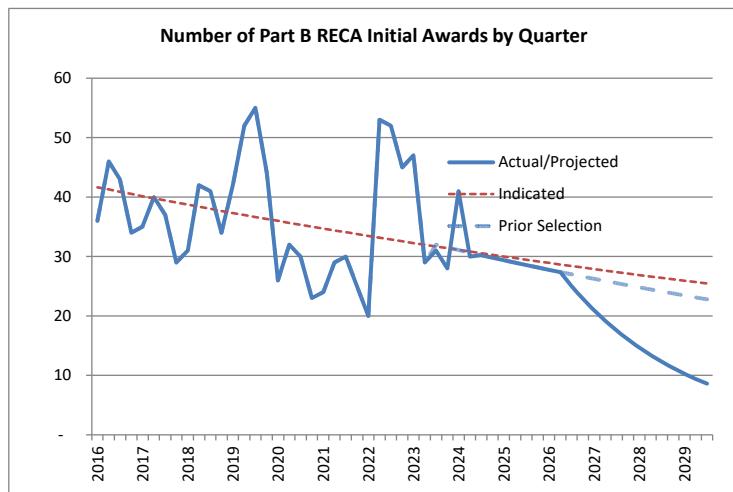
---

To estimate the number of claimants that will be receive their first award (“initial awards”) in the future, the historical number of initial awards by quarter is determined in total for Part E and by governing disease for Part B. Part B is split out by governing disease because the compensation payment amounts are different by governing disease for Part B.

For Part B, an exponential decay model is then fit to the recent history, minimizing the sum of squared errors between the actual data and the fitted data, to determine the parameters with the best fit. Judgment is used to determine how many quarters of recent history should be incorporated into the fit model, and whether the decay parameters are applicable for recent history. For Part E, initial awards have been increasing recently, so significant actuarial judgment is required to estimate the timing and amount of future decreases in reporting.

The exhibits on the following pages show a graph of the quarterly history of initial awards, the modeled fit line, as well as the assumed projections (current and prior). Significant actuarial judgment was used in making these projections. Hence the projection will not always coincide with the modeled fit line.

### Part B: RECA Section 5

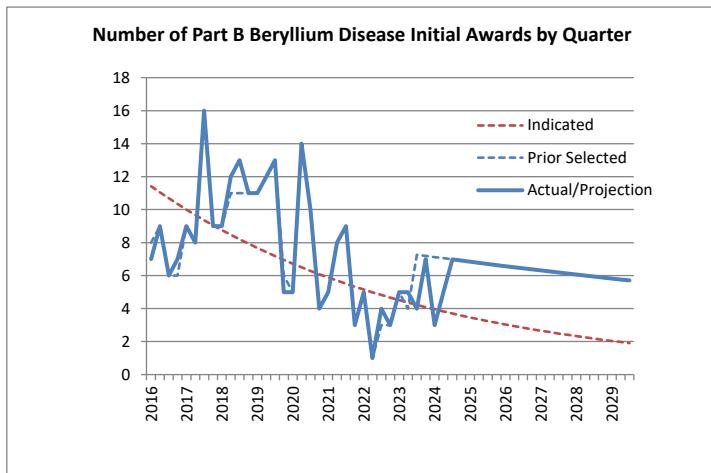


#### Estimated Decay Rates:

	<u>2024</u>	<u>2023</u>
Quarterly	1.4%	1.4%
Annual 2 yrs	5.5%	5.5%
After 2 yrs	30.0%	5.5%

By statute, the RECA program has sunset on June 10, 2024. Only claims that have been postmarked on or before the sunset date will be eligible for a Part B award as a RECA claim. Because initial awards can be made many years after the filing date, we assume that the decay rates will continue at 5.5% for the next two years and then decrease to 30% decay per year.

## Part B: Beryllium Disease

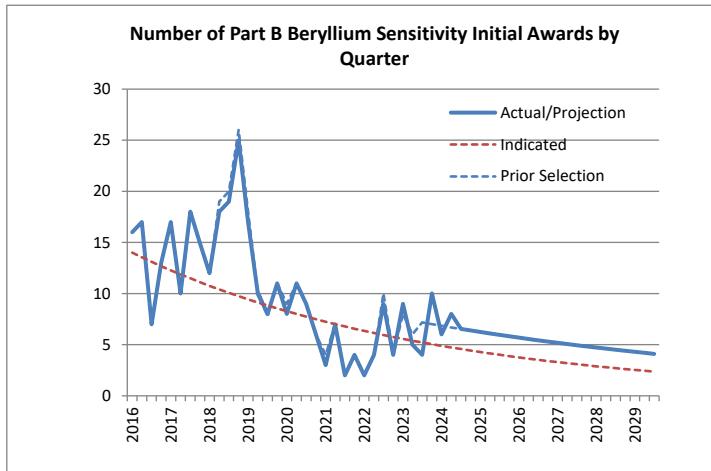


Estimated Decay Rates:

	<u>2024</u>	<u>2023</u>
Quarterly	1.0%	1.0%
Annual	3.9%	3.9%

The future projections are unchanged from last year's analysis.

## Part B: Beryllium Sensitivity

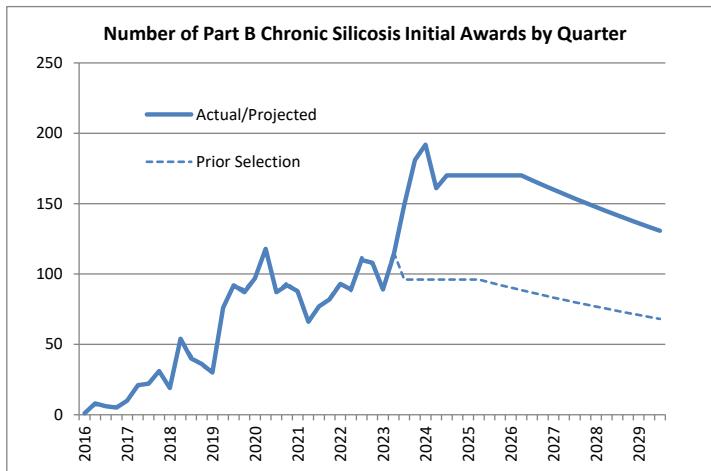


Estimated Decay Rates:

	<u>2024</u>	<u>2023</u>
Quarterly	2.3%	2.3%
Annual	8.9%	8.9%

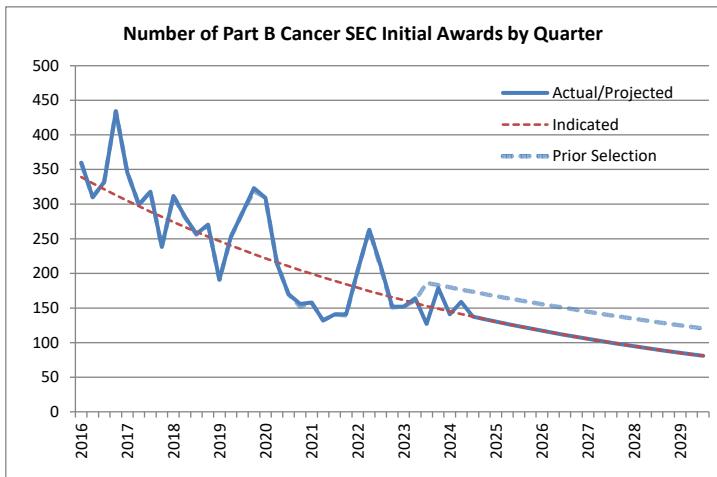
The future projections are unchanged from last year's analysis.

## Part B: Chronic Silicosis



Due to the recent increase in initial awards, a curve was not fit to the historical data for Part B Chronic Silicosis. Instead, 170 new initial awards per quarter are projected for the next eight quarters, with a 2% quarterly decay going forward at that point.

## Part B: Cancer SEC



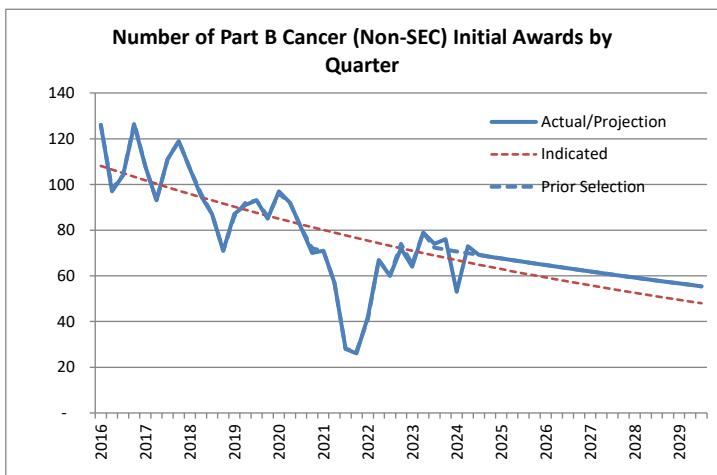
### Estimated Decay Rates:

	2024	2023
Quarterly	2.6%	1.8%
Annual	10.1%	7.0%

For Cancer SEC, the decay parameter was increased from last year's projections.

The liability model does not explicitly assume any future new SEC class designations.

## Part B: Cancer Non-SEC

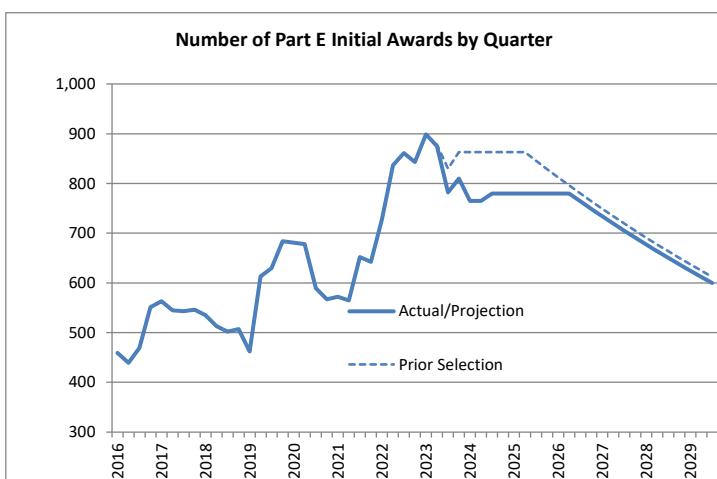


### Estimated Decay Rates:

	2024	2023
Quarterly	1.1%	1.1%
Annual	4.3%	4.3%

The future projections are unchanged from last year's analysis.

## Part E



Due to the historical patterns observed in initial awards, a decay curve is not fit to the data for Part E. Instead, approximately 780 new cases per quarter are projected for the next eight quarters with a 2% quarterly decay after that point.

The estimated number of future Part E initial awards has decreased since last year's analysis.

**TABLE 6**  
**PROJECTED NUMBER OF INITIAL AWARDS BY YEAR**

Fiscal Yr	Projected Number of Initial Awards								
	Part B								
	RECA5	BD	BS	CS	CN SEC	CN Non SEC	Part B Total	Part E	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
Prior	6,450	2,617	771	125	10,425	6,621	27,009	22,895	
2010	324	128	65	16	2,231	787	3,551	3,412	
2011	265	117	71	21	2,805	767	4,046	2,904	
2012	285	98	55	13	2,572	742	3,765	2,956	
2013	279	62	44	2	2,789	571	3,747	3,243	
2014	214	55	37	3	1,814	441	2,564	2,300	
2015	208	50	46	12	1,379	395	2,090	1,803	
2016	163	41	55	22	1,322	473	2,076	1,822	
2017	146	40	58	58	1,397	438	2,137	2,202	
2018	143	43	64	144	1,089	408	1,891	2,096	
2019	183	47	60	234	1,002	342	1,868	2,212	
2020	132	34	39	389	1,016	355	1,965	2,632	
2021	106	26	18	323	587	226	1,286	2,356	
2022	150	13	19	374	819	195	1,570	3,068	
2023	152	17	22	459	595	289	1,534	3,399	
2024 (est)	129	22	31	704	616	271	1,773	3,120	
Through 2024 (est)							62,872	62,420	

Notes:

1. The classification of governing disease can slightly change from previous years reporting if the claimant receives an award for additional conditions, but the overall total headcount will not be impacted by the reclassification.
2. The totals for Part B and Part E cannot be summed together to obtain the total number of claimants, since many claimants receive awards for both Part B and Part E.
3. The initial awards for the last quarter of fiscal year 2024 are projected values, as this report is produced prior to the end of the fiscal year.

**TABLE 6 (Continued)**  
**PROJECTED NUMBER OF INITIAL AWARDS BY YEAR**

Fiscal Yr	Projected Number of Initial Awards								Part E	
	Part B									
	RECA5	BD	BS	CS	CN SEC	CN Non SEC	Part B Total			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)		(9)	
2025	117	27	25	680	515	269	1,633		3,120	
2026	108	26	22	677	463	257	1,554		3,104	
2027	81	25	20	634	416	246	1,423		2,908	
2028	56	24	19	585	374	236	1,294		2,682	
2029	39	23	17	539	337	225	1,181		2,474	
2030	28	22	15	497	303	216	1,081		2,282	
2031	19	21	14	459	272	206	992		2,105	
2032	14	21	13	423	245	197	912		1,941	
2033	9	20	12	390	220	189	840		1,791	
2034	7	19	11	360	198	181	775		1,652	
2035	5	18	10	332	178	173	715		1,523	
2036	3	17	9	306	160	165	661		1,405	
2037	2	17	8	282	144	158	612		1,296	
2038	2	16	7	261	129	151	566		1,195	
2039	1	16	7	240	116	145	525		1,103	
2040	1	15	6	222	105	139	487		1,017	
2041	-	14	6	204	94	133	451		938	
2042	-	14	5	189	85	127	419		865	
2043	-	13	5	174	76	121	389		798	
2044	-	13	4	160	68	116	362		736	
2045	-	12	4	148	62	111	337		679	
2046	-	12	3	136	55	106	313		626	
2047	-	11	3	126	50	102	292		578	
2048	-	11	3	116	45	97	272		533	
2049	-	10	3	107	40	93	253		491	
2050	-	10	2	99	36	89	236		453	
2051	-	10	2	91	33	85	221		418	
2052	-	9	2	84	29	82	206		386	
2053	-	9	2	78	26	78	192		356	
2054	-	8	2	72	24	75	180		328	
2055	-	8	2	66	21	71	168		303	

### **3: Estimate the average compensation payment per case**

---

#### **Part B Compensation**

For Part B, the compensation benefit is paid out as a lump sum. The amount of the payment varies by governing disease as follows:

RECA Section 5 (DOL payment)	\$50,000
RECA Section 5 (DOJ payment)	\$100,000
Beryllium Disease, Cancer, Chronic Silicosis	\$150,000
Beryllium Sensitivity (Part B)	\$0

Under Part B, Beryllium Sensitivity cases are approved for medical benefits only. They do not receive compensation benefit payments. If the condition develops into Beryllium Disease, the case would then be eligible for compensation benefit payments.

#### **Part E Compensation**

Part E cases are eligible for wage loss benefits, impairment benefits and survivor benefits subject to a maximum payment of \$250,000 total compensation for the employee and survivor combined.

For Part E, historically less than 30% of the ultimate compensation benefits are paid within one fiscal year of approval. This is due to the nature of the benefit payments. Employee claimants can file for additional wage or impairment payments subsequent to the initial case award, and the survivors of the employee may be eligible to receive benefit payments years after the initial case award.

Because of the development of payments over time, a standard triangle development approach is employed where the compensation payments are organized into a triangle by initial award approval quarter and subsequent payment quarters. Historical relationships between quarters were then measured and projected forward to indicate ultimate payments by approval quarter.

For more detail on the triangle development analysis, see Appendix 3.

## 4: Payout patterns

---

Multiplying the number of cases from Step 2 times the average compensation benefit payment per case will determine the total amount of compensation benefit payment for new initial awards.

The next step is to estimate cash flow by fiscal year. To estimate the cash flow, it is necessary to know the timing of the benefit payments.

The historical data shows that nearly all of the Part B cases pay the full amount of the compensation benefit within the same fiscal year as the case approval.

### **Part B Compensation Payout Pattern**

Year 1	100%
--------	------

The compensation payment triangle analysis was used to estimate the payout pattern for Part E benefits:

### **Part E Compensation Payout Pattern**

<u>Year</u>	<u>% Paid</u>
Year 1	24.8%
Year 2	27.5%
Year 3	6.9%
Year 4	6.7%
Year 5	4.8%
Year 6	3.8%
Year 7	3.3%
Year 8	3.1%
Year 9	2.7%
Year 10	2.6%
Year 11	2.4%
Year 12	2.2%
Year 13	2.4%
Year 14	1.4%
Years 15-25	0.5%

For more detail on the payment pattern analysis, please see Appendix 3.

## 5: Estimate the number of individuals eligible for medical benefits

---

The next step in the process is to estimate the future medical payments.

Only the cases in which an approved claim was filed by an employee are eligible for medical benefits. The pool of individuals eligible to receive medical benefits includes both existing and newly awarded cases that were filed by an employee (as long as the employee is still alive).

Historical ratios were used to select the percentage of future initial awards expected to be filed by an employee (and thus eligible for medical benefits).

### % of Initial Awards that were filed by an Employee

	RECA	BD	BS	CS	CN SEC	CN Non SEC	Part E
Prior	53%	63%	100%	78%	31%	42%	54%
2010	60%	73%	100%	75%	33%	57%	60%
2011	60%	70%	100%	67%	28%	61%	62%
2012	65%	67%	100%	69%	34%	59%	60%
2013	75%	68%	100%	100%	41%	60%	65%
2014	64%	78%	100%	100%	42%	69%	69%
2015	65%	78%	100%	83%	47%	65%	71%
2016	60%	68%	100%	86%	51%	63%	75%
2017	60%	80%	100%	90%	52%	66%	76%
2018	65%	79%	98%	93%	57%	72%	79%
2019	52%	68%	100%	95%	61%	73%	82%
2020	64%	79%	100%	94%	59%	82%	85%
2021	51%	77%	100%	94%	66%	83%	88%
2022	66%	100%	100%	91%	61%	81%	90%
2023	45%	76%	100%	94%	66%	88%	92%
Selected	<b>45%</b>	<b>75%</b>	<b>100%</b>	<b>94%</b>	<b>66%</b>	<b>85%</b>	<b>96%</b>

The selected ratios are then applied to the estimated number of initial awards in all future years, to estimate the number of individuals that will be eligible for medical benefits.

## 6: Remove double counting

---

Cases can be approved for Part B alone, Part E alone, or for both Part B and Part E. Cases approved for either Part are eligible to receive medical benefits. The number of claimants with initial awards is being projected separately by Part, so the total count of initial awards will count many, but not all, of the individuals twice (once for Part B and once for Part E). Historical ratios are used to determine how the initial awards need to be reduced in order to convert the number of initial awards to the number of individuals eligible for medical benefits.

Because the award decisions are made separately for each Part (for example, a case could receive approval for Part B and then months or years later receive approval for Part E), a reduction in the case count is made for the assumption that some of the initial awards by Part will have already been awarded for the other Part and thus are already included in the count of individuals eligible for medical benefits. It is assumed that 16% of claimants with Part B initial awards have already been approved for Part E, and that 0.3% of claimants with Part E initial awards have already been approved for Part B.

Additionally, some claimants will receive initial awards both Part B and Part E at the same time, or in the same fiscal year. A reduction must be made so that these two awards are not treated as two separate individuals eligible for medical benefits. Historically, approximately 78% of the employee-filed Part B initial awards are approved for Part E at the same time. It is assumed that this ratio will continue into the future.

<b>Percent of Part B cases filed by an employee that had previously been accepted as Part E</b>		<b>Percent of Part E cases filed by an employee that had previously been accepted as Part B</b>		<b>Percent of Part B cases filed by an employee where Part E is approved in the same year</b>	
<b>FY</b>	<b>Percent</b>	<b>FY</b>	<b>Percent</b>	<b>FY</b>	<b>Percent</b>
2010	10.2%	2010	1.3%	2010	79.3%
2011	9.0%	2011	1.4%	2011	69.2%
2012	10.5%	2012	1.5%	2012	73.3%
2013	7.8%	2013	0.8%	2013	81.1%
2014	8.8%	2014	0.7%	2014	77.9%
2015	8.9%	2015	0.8%	2015	78.7%
2016	8.6%	2016	0.8%	2016	78.3%
2017	9.7%	2017	0.6%	2017	77.8%
2018	12.3%	2018	0.7%	2018	77.0%
2019	12.2%	2019	0.4%	2019	80.1%
2020	11.7%	2020	0.3%	2020	81.8%
2021	12.9%	2021	0.5%	2021	80.2%
2022	17.6%	2022	0.3%	2022	79.5%
2023	20.3%	2023	0.1%	2023	75.6%
<b>Selected</b>	<b>16.0%</b>	<b>Selected</b>	<b>0.3%</b>	<b>Selected</b>	<b>78.0%</b>

To convert the employee-filed awards into the number of employee-filed awards eligible for medical benefits, the number of employee-filed Part B initial awards is reduced by 16%, the number of employee-filed Part E initial awards is reduced by 0.3% and then the number of employee-filed Part B initial awards is further reduced by 78% to estimate the total number of new individuals eligible for medical benefits by year.

## 7: Mortality

---

Because the EEOICPA program is not always notified when a participant is deceased, the number of individuals that are still alive and eligible for medical benefits must be estimated, using mortality assumptions. The mortality assumptions in the model are reviewed every three years. The 9/30/2024 liability estimate uses the Private Retirement Plans (Pri-2012) Male Disabled Retiree mortality table, published by the Society of Actuaries in October 2019.

For purposes of applying mortality rates, the model uses the average age of the employees at initial award, age 71<sup>2</sup>.

### Average Age of Employee at Initial Award

Part B			Part E		
		<u>Avg Age</u>			<u>Avg Age</u>
<u>FY</u>	<u>Count</u>	<u>at Award</u>	<u>FY</u>	<u>Count</u>	<u>at Award</u>
2014	1,291	72.7	2014	1,579	71.3
2015	1,137	72.8	2015	1,272	72.2
2016	1,176	73.7	2016	1,370	72.4
2017	1,255	73.2	2017	1,681	72.4
2018	1,246	72.2	2018	1,653	71.5
2019	1,285	72.5	2019	1,812	71.2
2020	1,421	71.9	2020	2,236	70.3
2021	982	71.3	2021	2,074	69.3
2022	1,150	71.8	2022	2,747	68.7
2023	1,190	71.0	2023	3,136	68.0
2024 (est)	1,100	68.1	2024 (est)	2,187	68.2
Average		71.9	Average		70.5

---

<sup>2</sup> The exception to this assumption is for employees for which the initial award date was more than 15 years ago. For these employees, the model uses a weighted average of the actual age at approval.

## 8: Estimate the Number of Individuals eligible for medical benefits

---

The total number of individuals eligible to receive medical benefits each year is then the number of individuals with prior initial awards, assumed to be still alive, plus the number of new initial awards (adjusted to remove double counting of cases with initial awards for both Parts) minus the number of expected deaths, as shown below:

### ESTIMATED LIABILITY FOR EEOICPA AS OF SEPTEMBER 30, 2024

#### ESTIMATED NUMBER OF INDIVIDUALS ELIGIBLE FOR MEDICAL EXPENSES

Fiscal Year	New Cases Eligible for Medical Expenses								Remove double counting:					Total # Individuals Eligible		Average # Individuals Eligible	
	RECAS	BD	BS	CS	CN SEC	Non SEC	Part E	Part B already in	Part E already in	EB concurrent	Net new Individuals	Assumed # Deaths	(14)	(15)			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)			(14)	(15)	
Prior	3,391	1,661	771	97	3,212	2,799	12,393	(153)	(3,710)	(5,320)	15,141	(2,690)		12,451			
2010	193	94	65	12	744	446	2,050	(159)	(27)	(1,233)	2,185	(759)		13,877		13,164	
2011	160	82	71	14	777	467	1,790	(142)	(25)	(1,087)	2,107	(869)		15,115		14,496	
2012	184	66	55	9	876	439	1,773	(171)	(26)	(1,194)	2,011	(977)		16,150		15,633	
2013	210	42	44	2	1,135	345	2,095	(138)	(16)	(1,442)	2,277	(1,096)		17,331		16,741	
2014	138	43	37	3	764	306	1,579	(114)	(11)	(1,006)	1,739	(1,192)		17,878		17,605	
2015	135	39	46	10	649	257	1,272	(101)	(10)	(894)	1,403	(1,271)		18,010		17,944	
2016	98	28	55	19	673	298	1,370	(101)	(11)	(917)	1,512	(1,352)		18,170		18,090	
2017	88	32	58	52	731	290	1,681	(121)	(10)	(973)	1,828	(1,440)		18,558		18,364	
2018	93	34	63	134	619	292	1,653	(152)	(11)	(951)	1,774	(1,520)		18,812		18,685	
2019	95	32	60	223	615	249	1,812	(155)	(7)	(1,021)	1,903	(1,598)		19,116		18,964	
2020	84	27	39	367	602	291	2,236	(165)	(7)	(1,153)	2,321	(1,686)		19,752		19,434	
2021	54	20	18	304	386	187	2,074	(125)	(10)	(777)	2,131	(1,756)		20,127		19,939	
2022	99	13	19	342	503	158	2,747	(200)	(8)	(902)	2,771	(1,844)		21,054		20,590	
2023	69	13	22	430	391	253	3,136	(239)	(4)	(890)	3,181	(1,942)		22,293		21,673	
2024 (est)	58	16	31	665	407	230	2,995	(225)	(7)	(1,098)	3,072	(2,028)		23,337		22,815	

(2) to (8) = Number of initial awards \* percent of cases filed by employee

(12) = Sum of (2) through (11)

(13) = Mortality tables applied to the average number of individuals eligible

(14) = (14) from previous year + (12) + (13)

(15) = Average of (14) from previous year and (14) from current year

**ESTIMATED LIABILITY FOR EEOICPA**  
**AS OF SEPTEMBER 30, 2024**

**ESTIMATED NUMBER OF INDIVIDUALS ELIGIBLE FOR MEDICAL EXPENSES**

Fiscal Year	New Cases Eligible for Medical Expenses						Remove double counting:				Assumed # Deaths	Total # Individuals	Average # Individuals	
	RECA5	BD	BS	CS	CN SEC	Non SEC	Part B	Part E	EB	Net new Individuals		Eligible	Eligible	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
2025	53	20	25	642	340	229	2,995	(209)	(7)	(1,020)	3,066	(2,107)	24,296	23,816
2026	49	20	22	639	306	219	2,980	(201)	(7)	(978)	3,048	(2,179)	25,164	24,730
2027	36	19	20	598	275	209	2,791	(185)	(7)	(903)	2,854	(2,234)	25,784	25,474
2028	25	18	19	552	247	200	2,575	(170)	(6)	(828)	2,632	(2,274)	26,142	25,963
2029	18	17	17	509	222	192	2,375	(156)	(6)	(760)	2,427	(2,303)	26,266	26,204
2030	12	17	15	469	200	183	2,190	(144)	(5)	(700)	2,239	(2,322)	26,183	26,225
2031	9	16	14	433	180	175	2,020	(132)	(5)	(645)	2,065	(2,333)	25,915	26,049
2032	6	15	13	399	162	168	1,864	(122)	(5)	(595)	1,905	(2,336)	25,484	25,699
2033	4	15	12	368	145	161	1,719	(113)	(4)	(550)	1,757	(2,331)	24,910	25,197
2034	3	14	11	340	131	154	1,585	(104)	(4)	(509)	1,621	(2,317)	24,213	24,561
2035	2	14	10	313	117	147	1,462	(97)	(4)	(471)	1,495	(2,296)	23,412	23,812
2036	1	13	9	289	106	141	1,349	(89)	(3)	(436)	1,379	(2,265)	22,526	22,969
2037	1	13	8	267	95	135	1,244	(83)	(3)	(404)	1,272	(2,226)	21,571	22,048
2038	1	12	7	246	85	129	1,148	(77)	(3)	(375)	1,174	(2,179)	20,566	21,069
2039	1	12	7	227	77	123	1,058	(71)	(3)	(348)	1,083	(2,122)	19,527	20,046
2040	0	11	6	209	69	118	976	(66)	(2)	(323)	999	(2,058)	18,468	18,997
2041	-	11	6	193	62	113	901	(61)	(2)	(300)	921	(1,986)	17,403	17,935
2042	-	10	5	178	56	108	831	(57)	(2)	(279)	850	(1,907)	16,346	16,874
2043	-	10	5	164	50	103	766	(53)	(2)	(259)	784	(1,823)	15,307	15,826
2044	-	10	4	151	45	99	707	(49)	(2)	(241)	723	(1,734)	14,296	14,802
2045	-	9	4	140	41	94	652	(46)	(2)	(224)	667	(1,642)	13,322	13,809
2046	-	9	3	129	37	90	601	(43)	(2)	(209)	616	(1,549)	12,389	12,855
2047	-	8	3	119	33	86	555	(40)	(1)	(195)	568	(1,455)	11,502	11,945
2048	-	8	3	110	30	83	511	(37)	(1)	(182)	524	(1,362)	10,664	11,083
2049	-	8	3	101	27	79	472	(35)	(1)	(169)	484	(1,272)	9,875	10,270
2050	-	7	2	93	24	76	435	(32)	(1)	(158)	446	(1,185)	9,137	9,506
2051	-	7	2	86	21	72	401	(30)	(1)	(148)	412	(1,101)	8,447	8,792
2052	-	7	2	79	19	69	370	(28)	(1)	(138)	380	(1,022)	7,805	8,126
2053	-	7	2	73	17	66	341	(26)	(1)	(129)	351	(947)	7,209	7,507
2054	-	6	2	67	16	63	315	(25)	(1)	(121)	323	(876)	6,656	6,932
2055	-	6	2	62	14	61	291	(23)	(1)	(113)	298	(810)	6,144	6,400
2056	-	-	-	-	-	-	-	-	-	-	-	(737)	5,407	5,775
2057	-	-	-	-	-	-	-	-	-	-	-	(669)	4,738	5,072
2058	-	-	-	-	-	-	-	-	-	-	-	(605)	4,133	4,435
2059	-	-	-	-	-	-	-	-	-	-	-	(546)	3,587	3,860
2060	-	-	-	-	-	-	-	-	-	-	-	(491)	3,096	3,341
2061	-	-	-	-	-	-	-	-	-	-	-	(439)	2,657	2,877
2062	-	-	-	-	-	-	-	-	-	-	-	(392)	2,265	2,461
2063	-	-	-	-	-	-	-	-	-	-	-	(347)	1,918	2,092
2064	-	-	-	-	-	-	-	-	-	-	-	(306)	1,612	1,765
2065	-	-	-	-	-	-	-	-	-	-	-	(269)	1,343	1,477
2066	-	-	-	-	-	-	-	-	-	-	-	(234)	1,109	1,226
2067	-	-	-	-	-	-	-	-	-	-	-	(202)	907	1,008
2068	-	-	-	-	-	-	-	-	-	-	-	(173)	734	821
2069	-	-	-	-	-	-	-	-	-	-	-	(147)	588	661
2070	-	-	-	-	-	-	-	-	-	-	-	(123)	465	526
2071	-	-	-	-	-	-	-	-	-	-	-	(102)	363	414
2072	-	-	-	-	-	-	-	-	-	-	-	(83)	280	321
2073	-	-	-	-	-	-	-	-	-	-	-	(67)	213	246
2074	-	-	-	-	-	-	-	-	-	-	-	(53)	159	186
2075	-	-	-	-	-	-	-	-	-	-	-	(42)	117	138
2076	-	-	-	-	-	-	-	-	-	-	-	(32)	85	101
2077	-	-	-	-	-	-	-	-	-	-	-	(24)	61	73
2078	-	-	-	-	-	-	-	-	-	-	-	(18)	43	52
2079	-	-	-	-	-	-	-	-	-	-	-	(13)	30	37
2080	-	-	-	-	-	-	-	-	-	-	-	(10)	21	25
2081	-	-	-	-	-	-	-	-	-	-	-	(7)	14	17
2082	-	-	-	-	-	-	-	-	-	-	-	(5)	9	11
2083	-	-	-	-	-	-	-	-	-	-	-	(3)	6	7
2084	-	-	-	-	-	-	-	-	-	-	-	(2)	4	5

(2)-(8) = Number of initial awards \* percent of cases filed by employee

(12) = Sum of (2) through (11)

(13) = Mortality tables applied to the average number of individuals eligible

(14) = (14) from previous year + (12) + (13)

(15) = Average of (14) from previous year and (14) from current year

## **9: Estimate Average Medical Payments and Inflation Rates**

---

The total medical payments each year are divided by the average number of eligible individuals to determine the average medical payment per eligible individual for each year.

Estimated Average Medical Payment in fiscal year 2024      \$86,787

Medical inflation rates are then estimated for future years. The medical inflation includes year-over-year increases in the unit costs of medical goods and services, as well as increased utilization and changes in mix or intensity.

The average medical inflation rates for fiscal years 2025 to 2029 were estimated based on guidance from OWCP management regarding expected unit cost, utilization, and intensity increases in the short term. Estimated medical inflation rates for 2030 and later are based on long-term expectations for medical inflation.

### **Annual Medical Inflation**

Fiscal year 2025	8.3%
Fiscal year 2026	5.9%
Fiscal year 2027	5.9%
Fiscal year 2028	5.8%
Fiscal year 2029	5.8%
Fiscal year 2030 and later	5.0%

## 10: Calculate the total expected Medical Payment by year

---

The total number of individuals eligible is multiplied by the average medical payment per eligible individual to determine the expected medical payments by fiscal year, as shown below.

<u>FY</u>	<u># Individuals Eligible</u> (1)	Average	<u>Total Undiscounted Medical Payments</u> (3)
		Medical Payment per Eligible Individual (2)	
2025	23,816	\$ 93,990	\$ 2,238,472,117
2026	24,730	99,535	2,461,507,975
2027	25,474	105,408	2,685,194,225
2028	25,963	111,522	2,895,436,622
2029	26,204	117,990	3,091,806,871
2030	26,225	123,889	3,248,935,769
2031	26,049	130,084	3,388,524,134
2032	25,699	136,588	3,510,193,098
2033	25,197	143,417	3,613,628,136
2034	24,561	150,588	3,698,634,344
2035	23,812	158,118	3,765,166,748
2036	22,969	166,023	3,813,366,014
2037	22,048	174,325	3,843,595,965
2038	21,069	183,041	3,856,459,747
2039	20,046	192,193	3,852,792,973
2040	18,997	201,803	3,833,662,232
2041	17,935	211,893	3,800,347,963
2042	16,874	222,487	3,754,320,129
2043	15,826	233,612	3,697,207,383
2044	14,802	245,292	3,630,725,591
2045	13,809	257,557	3,556,599,853
2046	12,855	270,435	3,476,497,372
2047	11,945	283,956	3,391,968,735
2048	11,083	298,154	3,304,402,299
2049	10,270	313,062	3,215,000,411
After 2049			39,752,097,101
Total future undiscounted			\$ 125,376,543,806

## **11: Discount the cash flows to 9/30/2024**

---

The projected cash flows by fiscal year for 2025 through 2084 are then discounted back to 9/30/2024.

The discount rates for compensation and medical payments are determined based on the duration of the liabilities. The rate used for discounting corresponds to the point on the Treasury yield curve for that duration. The Treasury curve being used is based on a five-year averaging of the U.S. Department of Treasury's Yield Curve for Treasury Nominal Coupon Issues from 7/1/2019 through 6/30/2024.

Discount rate for compensation payments	2.465%
Discount rate for medical payments	2.939%

## Appendix 1: Hindsight Opinion

---

The hindsight opinion adjusts the current liability estimate to be consistent with the liability estimate as of 9/30/2024, removing periods that were not contemplated at that time, and adding back payments made between the previous date and the current date. This is a more valid indication of revisions in the liability estimate than comparing the year-over-year amounts.

The current hindsight estimate of liability as of 9/30/2023 is \$83.8 billion, compared with a liability estimate of \$67.8 billion in the 9/30/2023 actuarial report. This increase is mainly driven by the increase in home health care payments in 2024 and increased future medical inflation. This increase is in line with what was expected based on the analysis shown in the Reconciliation of Change presented in Table 3.

### Calculation of 9/30/2023 Hindsight Liability Opinion

(\$billions)

Current Estimated Liability as of 9/30/2024	\$	84.3
Minus liability for additional exposure from 10/1/2023-9/30/2024		(0.8)
Plus payments in FY 2024 (excluding payment for current exposures)		2.8
Discount back to 9/30/2023		<u>(2.4)</u>
Hindsight Liability Estimate as of 9/30/2023		83.8
Liability Estimate as of 9/30/2023	\$	67.8
Change in liability estimate: dollars		16.0
Change in liability estimate: percent		23.6%

To arrive at the hindsight estimate, the liability for additional exposure was estimated at 1% of the total liability. The total estimate is not calculated at the employment year level.

## Appendix 2: Summary of EEOICPA Model Assumptions

---

	<u>as of 9/30/2024</u>	<u>as of 9/30/2023</u>
<b>Compensation Benefit Amounts</b>		
RECA Section 5 Benefit (DOL payment)	50,000	50,000
RECA Section 5 Benefit (DOJ payment)	100,000	100,000
Part B Benefit	150,000	150,000
Part B Annual Benefit Inflation	0.0%	0.0%
 Part E Compensation Payment:		
Ultimate average payment (minimum)	120,000	120,000
Ultimate average payment (maximum)	192,000	215,000
 <b>Discount Rates</b>		
Discount Factor for Compensation	2.465%	2.209%
Discount Factor for Medical	2.939%	2.571%
 Discount Period		
	60 Future Years	60 Future Years
	2025 - 2084	2024 - 2083
 <b>Duration (years)<sup>3</sup></b>		
Average Compensation Duration	11.9	12.5
Average Medical Duration	19.9	19.2
 <b>Medical Inflation Rates (Annual)</b>		
Fiscal Year 2025	8.3%	4.7%
Fiscal Year 2026	5.9%	4.7%
Fiscal Year 2027	5.9%	4.7%
Fiscal Year 2028	5.8%	4.7%
Fiscal Year 2029	5.8%	3.9%
Fiscal Year 2030 and later	5.0%	3.9%
 <b>Mortality</b>		
Mortality Table	PRI-2012 Male	PRI-2012 Male
	Disabled Retiree	Disabled Retiree
Projection Scale	No projection	No projection
 <b>New Cases (Initial awards)</b>		
Eligible for medical benefits if filed by employee	100%	100%
Average Age for new initial award	71	71

<sup>3</sup> The duration, as used in this context, is the nominal-weighted average payout of benefits, in years. The duration is used to determine the appropriate discount rate at which to discount the cash flows.

	<u>as of 9/30/2024</u>	<u>as of 9/30/2023</u>
--	------------------------	------------------------

**Percent of initial awards filed by employee**

RECA (Part B)	45%	59%
BD (Part B)	75%	86%
BS (Part B)	100%	100%
CS (Part B)	94%	94%
CN SEC (Part B)	66%	66%
CN Non SEC (Part B)	85%	83%
Part E	96%	96%

**Probability that the newly-approved case is already eligible for medical benefits**

Part B	16.0%	12.0%
Part E	0.3%	0.5%
Part B cases where Part E approved same year	78.0%	80.0%

**Annual Decay in initial awards**

RECA (Part B)	5.5% then 30%	5.5%
BD (Part B)	3.9%	3.9%
BS (Part B)	8.9%	8.9%
CS (Part B)	Flat 2 yrs, then 7.8% decay	Flat 2 yrs, then 7.8% decay
CN SEC (Part B)	10.1%	7.0%
CN Non SEC (Part B)	4.3%	4.3%
Part E	Flat 2 yrs, then 7.8% decay	Flat 2 yrs, then 7.8% decay

**Payment Pattern: Part B Compensation**

<u>Year</u>	% Paid	% Paid
Year 1	100%	100%

**Payment Pattern: Part E Compensation**

<u>Year</u>	% Paid	% Paid
Year 1	24.8%	25.8%
Year 2	27.5%	26.2%
Year 3	6.9%	6.8%
Year 4	6.7%	6.6%
Year 5	4.8%	4.6%
Year 6	3.8%	3.9%
Year 7	3.3%	3.6%
Year 8	3.1%	3.1%
Year 9	2.7%	2.8%
Year 10	2.6%	2.7%
Year 11	2.4%	2.4%
Year 12	2.2%	2.5%
Year 13	2.4%	2.3%
Year 14	1.4%	1.3%
Year 15-25	0.5%	0.5%

**Prior Year Cohort**

Average Age at Award	70	69
----------------------	----	----

## **Appendix 3: Part E Compensation Payments**

---

A triangle approach is employed to estimate the Part E compensation payout patterns. The compensation payments are organized into a paid triangle by initial award quarter and payment quarter. Historical relationships between quarters were then measured and projected forward to estimate the ultimate payments by initial award quarter.

The exhibits in the following pages show the triangle of payment amounts, the age-to-age factors and the selection of ultimate payments.

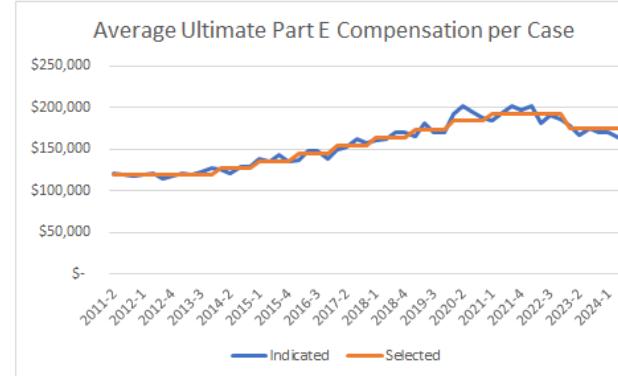
### Loss Development Factor (LDF) Method

The LDF method applies a loss development factor to paid cases by period (in this case, initial award quarter) to arrive at an estimate of the ultimate losses incurred in that period. The loss development factor varies by the maturity of the period. Loss development factors are selected based on review of historical development and actuarial judgment to consider items such as credibility of observed data and changing patterns within the aggregated data.

## Part E Compensation Payments

### Summary of Results

Cal Qtr of Initial Award	Current Paid	Paid LDF	Indicated Ultimate Payments	Ultimate Count	Indicated Ultimate Average Payment	Selected Ultimate Average Payment
2011-2	\$ 76,823,320	1.056	\$ 81,125,426	673	\$ 120,543	\$ 120,000
2011-3	69,302,241	1.063	73,668,282	612	120,373	120,000
2011-4	61,160,579	1.069	65,380,659	556	117,591	120,000
2012-1	74,466,359	1.073	79,902,403	668	119,614	120,000
2012-2	107,345,597	1.082	116,147,936	963	120,611	120,000
2012-3	80,818,367	1.090	88,092,020	769	114,554	120,000
2012-4	93,551,264	1.097	102,625,736	865	118,642	120,000
2013-1	96,670,768	1.103	106,627,857	883	120,756	120,000
2013-2	90,923,905	1.110	100,925,534	839	120,293	120,000
2013-3	72,095,554	1.117	80,530,734	656	122,760	120,000
2013-4	66,613,685	1.124	74,873,782	589	127,120	120,000
2014-1	58,815,508	1.131	66,520,339	529	125,747	128,000
2014-2	71,285,420	1.138	81,122,808	673	120,539	128,000
2014-3	57,114,009	1.146	65,452,654	509	128,591	128,000
2014-4	54,173,833	1.155	62,570,777	482	129,815	128,000
2015-1	56,132,987	1.164	65,338,797	469	139,315	136,000
2015-2	50,827,083	1.172	59,569,341	438	136,003	136,000
2015-3	50,245,081	1.183	59,439,931	414	143,575	136,000
2015-4	51,904,046	1.189	61,713,911	455	135,635	136,000
2016-1	52,734,928	1.199	63,229,179	459	137,754	145,000
2016-2	53,777,256	1.209	65,016,702	439	148,102	145,000
2016-3	57,260,024	1.220	69,857,229	469	148,949	145,000
2016-4	62,263,727	1.230	76,584,384	551	138,992	145,000
2017-1	67,791,123	1.241	84,128,783	563	149,429	154,000
2017-2	66,706,999	1.251	83,450,456	545	153,120	154,000
2017-3	69,769,922	1.265	88,258,951	543	162,540	154,000
2017-4	67,734,320	1.278	86,564,461	546	158,543	154,000
2018-1	66,409,196	1.292	85,800,681	535	160,375	164,000
2018-2	64,164,402	1.304	83,670,381	513	163,100	164,000
2018-3	64,706,213	1.318	85,282,789	502	169,886	164,000
2018-4	64,558,311	1.334	86,120,786	507	169,863	164,000
2019-1	56,854,080	1.350	76,753,008	462	166,132	174,000
2019-2	81,668,313	1.366	111,558,916	613	181,988	174,000
2019-3	77,512,464	1.382	107,122,226	630	170,035	174,000
2019-4	83,020,539	1.404	116,560,837	684	170,411	174,000
2020-1	92,199,119	1.425	131,383,744	681	192,928	185,000
2020-2	95,039,771	1.444	137,237,429	678	202,415	185,000
2020-3	78,223,687	1.469	114,910,596	589	195,094	185,000
2020-4	70,982,144	1.498	106,331,251	567	187,533	185,000
2021-1	69,020,163	1.530	105,600,849	572	184,617	192,000
2021-2	69,902,787	1.572	109,887,182	565	194,491	192,000
2021-3	81,390,921	1.621	131,934,683	652	202,354	192,000
2021-4	75,835,063	1.669	126,568,721	642	197,148	192,000
2022-1	85,960,975	1.714	147,337,111	728	202,386	192,000
2022-2	86,285,973	1.757	151,604,455	837	181,128	192,000
2022-3	90,572,500	1.811	164,026,798	861	190,507	192,000
2022-4	83,555,000	1.873	156,498,515	843	185,645	192,000
2023-1	82,624,572	1.941	160,374,295	899	178,392	175,000
2023-2	71,876,429	2.039	146,556,038	875	167,493	175,000
2023-3	61,854,988	2.213	136,885,087	782	175,045	175,000
2023-4	46,925,625	2.956	138,712,148	810	171,250	175,000
2024-1	18,643,333	6.987	130,260,970	765	170,276	175,000
2024-2	7,232,500	17.390	125,773,175	765	164,409	175,000



**Part E Compensation**

Cumulative Payments by Initial Award Quarter

Initial Award	1	2	3	4	5	6	7	8	9	10
Quarter	1	2	3	4	5	6	7	8	9	10
20112	23,840,751	32,734,782	40,288,250	43,164,500	45,094,500	46,908,250	48,160,280	48,875,875	49,985,875	50,890,875
20113	18,564,711	26,740,180	35,110,569	37,968,752	39,254,344	41,620,347	42,755,347	43,590,347	44,545,347	46,056,197
20114	16,217,366	24,988,889	32,137,071	34,396,960	36,536,060	37,385,231	38,457,731	38,990,231	39,561,481	40,121,981
20121	16,975,439	28,180,231	35,463,703	42,049,721	45,509,721	46,744,721	47,854,721	48,402,221	48,949,721	49,764,721
20122	34,940,761	49,547,664	56,652,483	60,745,251	64,582,946	66,665,446	68,632,849	69,761,183	70,817,103	71,807,103
20123	23,167,472	34,108,254	42,162,981	46,480,736	48,459,864	50,827,364	51,795,768	52,675,768	54,066,435	54,683,935
20124	21,110,000	36,045,000	45,266,937	51,672,340	55,657,479	58,119,384	59,260,217	60,275,217	61,770,217	63,932,717
20131	27,144,159	40,356,481	48,992,365	54,594,664	58,035,498	59,547,998	60,785,498	62,050,498	63,896,748	65,441,748
20132	25,768,833	34,871,290	45,108,051	50,764,064	53,794,514	56,264,514	56,962,014	58,054,514	58,927,302	59,669,802
20133	15,134,167	22,265,217	29,797,828	33,761,043	37,150,482	39,174,170	41,589,420	42,865,284	44,457,420	45,222,420
20134	13,450,000	21,484,834	28,824,423	34,380,811	36,644,477	38,953,735	40,564,734	41,639,834	42,335,251	42,825,251
20141	11,230,016	19,599,253	27,915,885	31,901,743	34,229,243	35,052,993	35,852,993	36,465,926	37,057,176	38,033,426
20142	17,404,402	27,116,306	34,372,627	38,455,127	42,250,886	43,983,386	45,434,402	46,046,902	46,969,402	48,050,652
20143	14,052,500	21,043,080	27,139,532	30,305,859	32,677,987	34,554,653	35,612,153	36,369,653	36,759,186	37,246,249
20144	13,659,968	20,711,122	26,680,651	29,134,064	31,629,586	33,478,776	34,681,276	35,543,776	36,234,326	37,221,826
20151	12,524,645	20,189,006	25,241,643	30,355,135	31,825,135	33,167,635	34,585,135	35,487,635	36,092,635	37,220,135
20152	13,043,750	19,757,500	25,716,195	28,764,623	30,545,873	31,931,065	33,633,624	34,219,874	35,577,708	36,567,708
20153	12,774,544	18,457,044	23,451,338	27,636,407	29,861,195	31,033,695	32,106,695	32,651,695	33,021,695	33,734,195
20154	10,412,500	17,463,540	24,260,779	28,400,714	30,968,214	33,005,714	34,130,714	35,008,214	36,240,744	37,028,244
20161	13,225,000	19,137,500	24,776,921	29,247,285	31,647,285	33,109,785	34,913,435	37,008,435	37,855,935	38,120,935
20162	10,932,500	19,001,272	25,584,678	30,798,906	32,946,225	34,493,725	35,348,725	35,754,975	37,034,975	38,074,975
20163	10,050,000	19,173,750	26,609,762	31,795,125	34,300,125	37,187,625	38,607,921	39,902,088	40,992,088	41,975,838
20164	14,800,000	23,947,322	34,411,081	38,593,581	41,565,094	43,520,094	44,870,094	46,027,594	46,655,094	47,420,094
20171	13,945,000	24,438,511	34,195,192	40,740,661	44,228,161	46,073,161	47,763,161	48,930,661	49,598,161	50,973,161
20172	10,715,000	21,922,348	31,015,218	37,888,512	40,591,012	42,498,512	43,416,012	44,176,012	45,756,012	47,285,512
20173	10,873,333	21,142,724	33,359,307	39,999,457	43,072,790	45,645,290	48,829,457	50,086,957	50,816,957	51,559,457
20174	12,340,197	23,785,349	37,479,107	42,090,012	45,696,543	47,040,476	48,587,976	49,670,476	51,157,976	52,502,351
20181	12,067,500	21,547,154	35,802,967	41,151,207	44,271,207	47,079,212	48,136,696	49,204,196	50,259,196	51,736,696
20182	9,512,500	19,927,500	31,167,500	38,465,000	42,494,402	43,942,319	45,173,152	46,865,652	47,850,652	49,048,152
20183	9,999,718	18,176,381	32,616,625	40,147,835	43,342,997	45,795,497	46,989,247	47,784,247	48,837,581	49,736,038
20184	8,918,750	16,407,500	32,523,278	39,718,278	42,878,695	45,407,445	47,668,695	49,402,466	50,282,398	51,382,398
20191	8,127,500	15,682,500	27,361,633	33,449,133	36,079,133	38,710,830	39,668,330	41,573,330	43,290,830	44,345,830
20192	10,303,001	24,185,449	40,419,040	48,657,768	52,031,680	54,381,680	56,505,813	58,943,313	60,812,063	62,494,563
20193	10,730,000	23,837,042	39,973,350	48,052,032	50,504,532	52,859,532	54,444,532	57,414,532	59,612,464	61,179,964
20194	11,402,500	24,682,500	44,455,987	52,921,789	56,939,289	59,394,289	61,281,789	63,556,789	65,804,289	67,319,289
20201	8,553,750	26,140,003	44,258,291	55,826,056	63,621,056	67,588,636	70,391,136	72,326,863	75,241,863	76,702,869
20202	7,755,000	20,216,915	46,687,007	63,973,209	71,426,485	75,276,009	77,694,771	79,562,271	81,282,271	82,777,271
20203	7,997,500	22,857,853	37,177,853	51,770,353	59,370,353	61,942,853	64,422,853	66,555,353	67,803,687	68,531,187
20204	5,429,167	18,371,667	39,039,644	47,977,144	51,402,144	53,534,644	55,594,644	57,927,144	59,609,644	61,567,144
20211	7,900,000	19,219,167	40,777,500	48,087,907	50,815,407	52,940,407	55,814,782	57,189,782	59,162,282	61,919,782
20212	6,356,764	20,904,264	41,954,705	51,114,705	55,075,287	57,355,287	58,840,287	61,372,787	62,967,787	64,285,287
20213	7,709,602	24,233,504	53,381,877	64,207,778	66,565,921	69,678,421	71,248,421	73,430,921	75,205,921	77,410,921
20214	7,829,167	21,894,167	48,476,813	59,431,313	63,256,313	66,121,313	68,158,813	70,436,313	72,617,563	74,170,063
20221	8,358,886	21,796,767	51,135,988	66,318,488	71,035,975	74,665,975	76,983,475	80,358,475	83,520,975	85,960,975
20222	11,212,500	24,337,500	50,347,500	67,587,450	73,034,950	77,259,950	80,049,950	83,712,450	86,285,973	
20223	9,827,500	20,497,500	51,092,500	74,180,000	80,992,500	85,520,000	88,377,500	90,572,500		
20224	7,075,000	18,490,000	44,920,000	67,395,000	75,085,000	80,010,000	83,555,000			
20231	8,655,000	17,865,000	48,342,500	69,055,000	77,707,072	82,624,572				
20232	9,317,500	18,923,929	45,113,929	65,971,429	71,876,429					
20233	7,142,500	14,602,910	41,496,238	61,854,988						
20234	7,023,125	18,415,625	46,925,625							
20241	7,767,500	18,643,333								
20242	7,232,500									

	1 to 2	2 to 3	3 to 4	4 to 5	5 to 6	6 to 7	7 to 8	8 to 9	9 to 10	10 to 11
Average	1.998	1.683	1.211	1.078	1.049	1.034	1.027	1.025	1.023	1.023
Wtd Avg	1.831	1.623	1.221	1.080	1.049	1.033	1.028	1.026	1.023	1.023
20 Qtr	2.547	2.151	1.305	1.086	1.051	1.034	1.035	1.028	1.025	1.026
12 Qtr	2.489	2.364	1.336	1.085	1.051	1.036	1.034	1.031	1.025	1.027
Selected	2.489	2.364	1.336	1.085	1.051	1.036	1.034	1.031	1.025	1.027
Prior Selected	2.671	2.136	1.280	1.082	1.047	1.034	1.037	1.030	1.025	1.027
Age-to-Ultimate	17.390	6.987	2.956	2.213	2.039	1.941	1.873	1.811	1.757	1.714

**Part E Compensation**

Cumulative Payments by Initial Award Quarter

Initial Award	11	12	13	14	15	16	17	18	19	20
Quarter	11	12	13	14	15	16	17	18	19	20
20112	52,030,601	52,983,101	53,450,601	54,683,101	55,305,601	55,785,601	56,620,601	57,063,101	57,848,101	59,348,101
20113	46,531,284	47,076,284	47,566,284	48,263,784	49,156,284	49,902,648	50,187,648	50,490,148	50,767,648	51,532,648
20114	40,499,481	41,459,033	42,206,533	42,874,033	43,654,969	44,024,969	44,552,195	45,283,839	46,033,839	46,443,839
20121	50,184,721	50,834,721	51,723,627	52,866,127	53,733,627	54,363,627	55,378,627	56,251,127	56,891,127	57,611,127
20122	72,617,790	74,250,290	75,847,790	77,220,290	78,417,541	79,802,541	80,506,291	81,890,932	83,129,997	84,879,997
20123	55,791,435	56,362,450	57,642,450	58,292,450	58,784,950	59,488,950	60,353,950	61,721,450	62,210,584	63,213,084
20124	64,817,717	66,812,539	67,775,039	68,806,102	70,088,432	71,332,182	72,378,432	73,510,932	74,600,932	75,633,432
20131	66,677,998	67,802,998	69,366,434	70,106,434	71,121,434	71,916,434	73,617,684	75,352,684	76,040,184	76,845,184
20132	61,602,302	62,809,662	63,819,662	65,599,662	66,762,162	67,624,662	69,084,662	70,146,266	71,746,347	72,448,847
20133	46,479,920	47,798,504	49,186,004	50,293,504	51,518,504	52,545,624	53,713,564	54,606,064	55,303,564	56,504,814
20134	44,196,501	45,042,751	46,367,713	47,031,463	48,486,463	49,141,463	49,967,532	50,792,404	51,419,904	51,957,404
20141	39,030,926	40,373,426	41,570,042	42,692,966	43,295,466	44,287,966	44,613,966	45,738,966	46,278,966	47,226,466
20142	48,690,652	50,510,652	51,730,652	52,505,652	53,958,152	54,850,652	55,290,652	55,998,152	56,813,270	57,735,770
20143	38,043,749	38,786,249	39,543,749	40,686,249	41,367,499	42,317,499	42,832,499	43,459,999	44,582,499	45,414,999
20144	38,166,826	39,031,826	39,829,326	41,309,326	42,116,826	42,551,826	43,081,826	44,191,826	44,806,826	45,646,826
20151	38,400,135	39,730,135	41,656,888	42,711,888	43,574,388	44,556,888	44,881,888	45,386,888	46,744,388	47,254,388
20152	37,065,208	38,020,208	39,165,208	39,731,458	39,848,958	40,595,208	41,272,708	41,770,208	42,010,208	42,532,708
20153	34,681,695	36,331,695	37,114,195	37,688,361	38,513,361	39,084,931	39,532,502	40,092,502	40,777,502	41,370,002
20154	37,895,744	38,440,744	39,258,524	40,366,024	41,173,524	41,528,809	41,958,809	42,708,809	43,779,046	44,489,046
20161	38,858,435	39,841,178	40,618,678	41,491,178	42,518,678	43,376,178	44,406,178	44,826,178	45,271,178	45,888,678
20162	39,199,975	40,354,975	41,714,934	42,669,599	43,684,599	44,417,256	44,839,756	45,309,756	46,677,256	47,572,256
20163	42,835,838	43,923,338	45,415,838	46,918,338	48,045,838	48,963,338	49,460,838	49,943,338	50,635,838	51,525,838
20164	48,200,094	49,389,835	50,459,835	51,134,835	51,987,335	52,809,835	53,642,335	54,079,835	54,653,585	56,166,085
20171	51,820,661	53,338,161	54,109,661	55,519,661	56,339,661	57,219,661	58,165,911	59,107,161	59,774,661	60,374,661
20172	48,297,512	49,995,012	51,722,512	52,402,512	53,575,895	54,453,395	55,135,895	56,395,895	57,268,499	58,892,249
20173	52,986,957	54,706,957	56,526,957	57,742,422	59,517,422	60,652,422	62,259,922	63,029,922	63,864,922	64,627,422
20174	53,477,351	54,518,710	56,066,210	57,231,210	58,559,960	59,879,960	60,489,960	61,129,960	62,004,320	62,809,320
20181	53,054,196	54,231,696	55,731,696	56,804,196	58,126,696	58,886,696	59,636,696	60,149,196	61,101,696	62,234,196
20182	50,555,652	52,483,152	54,020,652	55,585,652	56,463,152	57,543,152	58,568,152	59,220,652	59,830,652	60,643,152
20183	51,236,038	52,558,538	54,761,038	56,118,538	57,376,038	59,003,493	59,602,243	60,379,743	61,062,243	61,759,743
20184	52,477,398	54,188,311	55,803,311	56,915,811	57,973,311	59,285,811	59,943,311	60,563,311	61,705,811	62,955,811
20191	45,743,330	47,360,830	49,083,330	50,747,830	51,700,330	52,344,080	53,289,080	53,865,330	55,080,330	55,629,080
20192	64,602,063	66,518,730	69,116,230	71,158,730	73,426,230	75,051,230	77,084,563	78,124,563	79,163,313	80,188,313
20193	62,842,464	64,322,464	66,227,464	69,489,964	71,562,464	73,149,964	74,087,464	75,432,464	76,377,464	77,512,464
20194	68,670,539	71,078,039	73,705,539	75,525,539	77,068,039	78,455,539	79,780,539	81,328,039	83,020,539	
20201	78,587,869	81,471,619	83,729,119	85,509,119	87,264,119	89,176,619	90,976,619	92,199,119		
20202	84,227,271	86,592,271	88,534,771	90,164,771	91,597,271	93,554,771	95,039,771			
20203	70,611,187	72,106,187	73,681,187	75,638,687	76,943,687	78,223,687				
20204	63,574,644	65,859,644	67,669,644	69,654,644	70,982,144					
20211	63,605,163	65,297,663	67,305,163	69,020,163						
20212	66,057,787	67,732,787	69,902,787							
20213	79,265,921	81,390,921								
20214	75,835,063									
20221										
20222										
20223										
20224										
20231										
20232										
20233										
20234										
20241										
20242										

	11 to 12	12 to 13	13 to 14	14 to 15	15 to 16	16 to 17	17 to 18	18 to 19	19 to 20	20 to 21
Average	1.027	1.026	1.023	1.020	1.017	1.015	1.015	1.015	1.016	1.013
Wtd Avg	1.027	1.026	1.023	1.020	1.017	1.015	1.015	1.015	1.016	1.013
20 Qtr	1.029	1.030	1.025	1.022	1.019	1.015	1.013	1.016	1.016	1.013
12 Qtr	1.030	1.031	1.028	1.021	1.020	1.017	1.014	1.015	1.016	1.011
Selected	1.030	1.031	1.028	1.021	1.020	1.017	1.014	1.015	1.016	1.011
Prior Selected	1.029	1.032	1.026	1.023	1.019	1.016	1.012	1.015	1.017	1.013
Age-to-Ultimate	1.669	1.621	1.572	1.530	1.498	1.469	1.444	1.425	1.404	1.382

**Part E Compensation**

Cumulative Payments by Initial Award Quarter

Initial Award	21	22	23	24	25	26	27	28	29	30
Quarter	21	22	23	24	25	26	27	28	29	30
20112	59,918,101	60,340,601	61,250,601	62,118,101	63,035,878	63,948,378	64,443,378	65,417,602	66,057,602	66,432,410
20113	51,797,648	52,997,648	54,217,775	54,848,553	55,278,553	55,896,053	56,153,553	56,746,053	57,013,553	58,021,053
20114	47,261,339	48,031,339	48,583,839	48,856,339	49,411,339	49,653,839	50,358,839	51,293,839	51,728,839	52,233,839
20121	58,603,627	59,218,627	60,200,794	60,825,794	61,465,794	62,273,294	63,283,294	63,650,794	64,758,294	65,232,044
20122	85,499,997	85,842,497	87,553,747	87,871,247	88,871,247	89,308,747	90,766,247	91,318,747	92,302,497	93,672,497
20123	63,943,084	64,325,584	64,917,708	65,762,708	66,757,708	67,037,708	67,750,208	68,542,683	69,255,183	69,724,655
20124	76,413,432	77,639,212	78,474,212	79,434,212	80,284,212	80,814,212	81,483,764	82,028,764	82,438,764	83,418,764
20131	77,700,184	78,972,302	79,862,302	80,940,079	82,359,517	83,132,017	83,859,517	84,261,017	85,053,517	86,063,517
20132	74,178,698	74,743,698	75,753,698	76,233,698	77,458,904	78,483,904	79,231,404	80,381,404	81,371,404	81,916,404
20133	57,479,814	58,816,448	60,435,596	61,224,479	61,734,479	62,164,479	62,769,479	63,384,479	63,596,979	64,323,229
20134	52,634,904	53,759,904	54,434,516	55,429,441	56,215,780	56,855,780	57,168,280	58,153,280	58,305,780	58,630,780
20141	47,751,466	48,675,441	49,217,941	49,642,941	50,517,941	51,095,441	51,552,941	52,085,441	52,407,941	53,047,941
20142	58,775,770	59,978,270	60,535,770	61,350,770	61,810,770	62,558,270	62,803,270	63,678,270	64,453,270	65,345,420
20143	46,294,999	46,992,499	48,109,999	48,734,999	49,322,499	49,917,499	50,452,499	51,034,999	52,082,499	52,364,193
20144	46,151,826	46,724,326	46,984,326	47,238,804	48,248,804	48,723,804	49,371,304	49,748,804	50,018,804	50,348,833
20151	48,419,388	49,036,737	49,607,987	50,295,487	51,640,487	51,895,487	52,545,487	52,865,487	53,245,487	54,025,487
20152	43,087,708	43,605,208	44,493,958	45,021,458	45,526,458	46,007,458	46,834,958	47,672,458	48,237,458	48,652,458
20153	42,032,502	42,460,002	43,157,475	44,399,975	45,232,475	45,539,975	46,187,581	46,742,581	47,062,581	47,170,081
20154	45,681,546	46,284,046	46,476,546	46,879,046	47,202,796	47,612,796	48,104,046	48,969,046	49,316,546	49,669,046
20161	46,113,678	46,961,178	47,543,678	48,448,678	49,018,678	49,138,678	49,713,678	49,968,678	50,851,178	51,431,178
20162	48,394,756	48,694,756	49,109,756	49,287,256	49,904,756	50,297,256	51,032,256	51,614,756	52,022,256	52,597,256
20163	52,505,024	52,935,024	53,807,524	54,215,024	54,660,024	54,770,024	54,975,024	55,693,774	56,492,524	56,615,024
20164	56,806,227	57,326,227	57,943,727	59,003,727	59,231,227	59,731,227	60,641,227	60,948,727	61,603,727	61,963,727
20171	61,094,661	62,241,123	63,056,123	64,088,623	64,978,623	65,303,623	66,198,623	66,838,623	67,296,123	67,791,123
20172	59,414,749	60,179,749	61,129,749	62,164,499	62,976,999	64,629,499	65,336,999	65,781,999	66,706,999	
20173	65,327,422	66,019,922	66,644,922	67,609,922	68,249,922	68,929,922	69,274,922	69,769,922		
20174	63,409,320	64,391,820	64,876,820	65,234,320	66,104,320	67,226,820	67,734,320			
20181	62,521,696	63,544,196	64,841,696	65,456,696	65,961,696	66,409,196				
20182	61,630,652	62,400,652	62,943,152	63,463,152	64,164,402					
20183	62,274,743	63,167,243	63,761,213	64,706,213						
20184	63,403,311	63,998,311	64,558,311							
20191	56,114,080	56,854,080								
20192	81,668,313									
20193										
20194										
20201										
20202										
20203										
20204										
20211										
20212										
20213										
20214										
20221										
20222										
20223										
20224										
20231										
20232										
20233										
20234										
20241										
20242										

	21 to 22	22 to 23	23 to 24	24 to 25	25 to 26	26 to 27	27 to 28	28 to 29	29 to 30	30 to 31
Average	1.014	1.013	1.012	1.013	1.009	1.011	1.011	1.010	1.009	1.010
Wtd Avg	1.013	1.013	1.012	1.012	1.009	1.010	1.010	1.010	1.009	1.010
20 Qtr	1.013	1.012	1.013	1.012	1.010	1.010	1.010	1.010	1.009	1.009
12 Qtr	1.012	1.012	1.012	1.011	1.009	1.011	1.010	1.011	1.008	1.009
Selected	1.012	1.012	1.012	1.011	1.009	1.011	1.010	1.011	1.008	1.009
Prior Selected	1.013	1.012	1.014	1.013	1.008	1.011	1.012	1.009	1.009	1.010
Age-to-Ultimate	1.366	1.350	1.334	1.318	1.304	1.292	1.278	1.265	1.251	1.241

**Part E Compensation**

Cumulative Payments by Initial Award Quarter

**Initial Award**

Quarter	31	32	33	34	35	36	37	38	39	40
20112	66,832,410	67,386,160	67,773,660	68,343,660	68,678,660	69,301,160	69,660,327	70,025,327	70,340,327	70,590,327
20113	58,806,053	59,563,553	60,233,553	60,931,053	61,556,053	61,833,553	62,321,053	62,959,741	63,342,241	64,074,741
20114	53,023,691	53,588,191	54,210,691	54,532,980	55,032,980	55,747,980	56,072,268	56,282,268	56,387,268	56,504,768
20121	65,799,544	66,544,544	67,059,544	67,307,044	67,546,519	68,196,519	68,619,019	69,254,019	69,771,519	70,294,019
20122	94,604,997	95,402,497	96,353,497	96,895,997	97,728,497	98,508,497	99,410,997	100,078,497	100,860,997	101,318,497
20123	70,714,655	71,482,155	72,157,155	72,979,655	73,607,155	73,812,155	74,529,655	75,242,155	75,977,155	76,917,155
20124	83,991,264	84,853,764	85,168,764	85,551,264	86,338,764	86,948,764	87,826,264	88,733,764	89,108,764	89,418,764
20131	86,605,805	87,225,805	87,928,305	89,030,805	89,950,805	90,370,805	90,993,305	91,638,305	92,340,805	92,863,305
20132	82,513,904	83,196,404	83,908,904	84,751,405	85,368,905	85,741,405	86,266,405	86,558,905	87,166,405	87,948,905
20133	64,868,229	65,178,229	66,280,729	66,698,229	66,858,229	67,745,554	68,833,054	69,108,054	69,620,554	70,453,054
20134	59,778,280	60,280,780	60,746,007	61,583,507	61,846,007	62,543,096	63,213,096	63,825,596	64,540,440	65,201,264
20141	53,735,849	54,023,349	54,640,849	55,228,349	55,766,683	56,052,783	56,702,783	57,120,283	57,650,283	58,140,508
20142	66,257,920	66,825,420	67,712,920	68,067,920	68,395,420	68,755,420	69,547,920	69,995,420	70,557,920	71,105,420
20143	52,631,693	53,064,193	53,599,193	53,989,193	54,616,484	54,886,484	55,588,984	56,081,484	56,653,984	57,114,009
20144	50,776,333	51,308,833	51,871,333	52,493,833	53,067,583	53,346,333	53,686,333	53,901,333	54,173,833	
20151	54,127,987	54,512,987	55,052,987	55,120,487	55,485,487	55,682,987	55,757,987	56,132,987		
20152	49,057,458	49,574,583	49,832,083	50,012,083	50,589,583	50,667,083	50,827,083			
20153	48,095,081	48,720,081	49,182,581	49,690,081	50,170,081	50,245,081				
20154	50,106,546	50,559,046	51,031,546	51,664,046	51,904,046					
20161	51,748,678	52,214,928	52,382,428	52,734,928						
20162	53,089,756	53,367,256	53,777,256							
20163	57,002,524	57,260,024								
20164	62,263,727									
20171										
20172										
20173										
20174										
20181										
20182										
20183										
20184										
20191										
20192										
20193										
20194										
20201										
20202										
20203										
20204										
20211										
20212										
20213										
20214										
20221										
20222										
20223										
20224										
20231										
20232										
20233										
20234										
20241										
20242										

	31 to 32	32 to 33	33 to 34	34 to 35	35 to 36	36 to 37	37 to 38	38 to 39	39 to 40	40 to 41
Average	1.009	1.009	1.008	1.008	1.006	1.008	1.007	1.007	1.008	1.007
Wtd Avg	1.009	1.009	1.008	1.008	1.006	1.008	1.007	1.007	1.007	1.007
20 Qtr	1.009	1.009	1.008	1.008	1.006	1.008	1.007	1.007	1.008	1.007
12 Qtr	1.008	1.010	1.008	1.008	1.006	1.009	1.007	1.008	1.008	1.007
Selected	1.008	1.010	1.008	1.008	1.006	1.009	1.007	1.008	1.008	1.007
Prior Selected	1.009	1.010	1.008	1.008	1.007	1.009	1.007	1.007	1.007	1.007
Age-to-Ultimate	1.230	1.220	1.209	1.199	1.189	1.183	1.172	1.164	1.155	1.146

**Part E Compensation**

Cumulative Payments by Initial Award Quarter

Initial Award	41	42	43	44	45	46	47	48	49	50	51	52	53	54
20112	71,748,320	72,178,320	72,840,820	73,403,320	73,713,320	73,960,820	74,265,820	74,650,820	75,398,320	75,543,320	76,180,820	76,698,320		
20113	64,663,491	65,019,741	65,512,241	65,774,741	66,342,241	66,954,741	67,482,241	68,029,741	68,562,241	69,024,741	69,177,241			
20114	57,081,018	57,301,018	57,969,019	58,331,519	59,065,366	59,417,866	59,965,579	60,393,079	60,975,579	61,160,579				
20121	70,996,519	71,396,519	71,879,019	72,459,019	72,831,519	73,369,019	73,720,269	74,035,269	74,466,359					
20122	103,086,077	103,573,577	104,093,577	104,771,268	105,426,268	105,758,768	106,401,268	107,345,597						
20123	78,429,655	78,925,867	79,075,867	79,440,867	79,830,867	80,235,867	80,818,367							
20124	90,571,264	91,508,764	91,913,764	92,443,764	93,033,764	93,551,264								
20131	94,288,305	95,325,805	95,623,268	96,293,268	96,670,768									
20132	89,173,905	90,043,905	90,513,905	90,923,905										
20133	71,358,054	71,598,054	72,095,554											
20134	65,981,264	66,613,685												
20141	58,815,508													
20142														
20143														
20144														
20151														
20152														
20153														
20154														
20161														
20162														
20163														
20164														
20171														
20172														
20173														
20174														
20181														
20182														
20183														
20184														
20191														
20192														
20193														
20194														
20201														
20202														
20203														
20204														
20211														
20212														
20213														
20214														
20221														
20222														
20223														
20224														
20231														
20232														
20233														
20234														
20241														
20242														

	41 to 42	42 to 43	43 to 44	44 to 45	45 to 46	46 to 47	47 to 48	48 to 49	49 to 50	50 to 51	51 to 52	52 to 53	53 to 54	Tail Factor
Average	1.006	1.007	1.006	1.006	1.007	1.006	1.007	1.007	1.008	1.004	1.005	1.007		
Wtd Avg	1.007	1.007	1.006	1.006	1.006	1.005	1.006	1.007	1.008	1.004	1.005	1.007		
20 Qtr	1.006	1.007	1.006	1.006	1.007	1.006	1.007	1.007	1.008	1.004	1.005	1.007		
12 Qtr	1.006	1.007	1.006	1.006	1.007	1.006	1.007	1.007	1.008	1.004	1.005	1.007		
Selected	1.006	1.007	1.006	1.006	1.007	1.006	1.007	1.007	1.008	1.004	1.005	1.007	1.006	1.050
Prior Selected	1.006	1.007	1.007	1.007	1.007	1.007	1.007	1.006	1.006	1.005	1.006	1.006	1.006	1.050
Age-to-Ultimate	1.138	1.131	1.124	1.117	1.110	1.103	1.097	1.090	1.082	1.073	1.069	1.063	1.056	1.050

## Appendix 4: Undiscounted Liability Estimate and Annual Projections

---

As of 9/30/2024, the **undiscounted** liability for future EEOICPA benefit payments is projected at \$137.0 billion. The future compensation payments are projected at \$11.6 billion, and the future medical payments are projected at \$125.4 billion, on an undiscounted basis.

### ESTIMATED LIABILITY FOR EEOICPA AS OF SEPTEMBER 30, 2024

#### SUMMARY OF LIABILITY FOR FUTURE PAYMENTS (\$ Billions)

	Undiscounted Estimate as of <u>9/30/2024</u>
Compensation: Part B	\$ 2.8
Compensation: Part E	<u>8.8</u>
Compensation: Total	11.6
Medical Payments	125.4
Total Future Payments	137.0

**ESTIMATED LIABILITY FOR EEOICPA**  
**AS OF SEPTEMBER 30, 2024**

**SUMMARY OF UNDISCOUNTED EEOICPA PAYMENTS BY YEAR**

Fiscal Year	Compensation		Compensation		Medical		Total
	Part B	Undiscounted Payments	Part E	Undiscounted Payments	Total	Undiscounted Payments	
(1)	(2)	(3)	(4)	(5)	(6)		
2025	\$ 229,512,838	\$ 489,639,135	\$ 719,151,973	\$ 2,238,472,117	\$ 2,957,624,089		
2026	218,895,523	497,238,857	716,134,380	2,461,507,975	3,177,642,355		
2027	202,252,939	494,999,646	697,252,586	2,685,194,225	3,382,446,810		
2028	185,624,708	483,714,336	669,339,044	2,895,436,622	3,564,775,667		
2029	170,641,033	469,863,226	640,504,260	3,091,806,871	3,732,311,130		
2030	157,081,563	453,555,268	610,636,831	3,248,935,769	3,859,572,599		
2031	144,768,602	435,997,016	580,765,618	3,388,524,134	3,969,289,752		
2032	133,556,401	405,077,522	538,633,924	3,510,193,098	4,048,827,022		
2033	123,323,470	386,152,794	509,476,264	3,613,628,136	4,123,104,400		
2034	113,967,021	367,450,173	481,417,194	3,698,634,344	4,180,051,538		
2035	105,398,926	346,400,808	451,799,734	3,765,166,748	4,216,966,482		
2036	97,542,743	324,883,851	422,426,594	3,813,366,014	4,235,792,608		
2037	90,331,503	304,417,879	394,749,382	3,843,595,965	4,238,345,347		
2038	83,706,051	284,892,077	368,598,128	3,856,459,747	4,225,057,876		
2039	77,613,771	266,423,827	344,037,598	3,852,792,973	4,196,830,572		
2040	72,007,601	249,079,429	321,087,030	3,833,662,232	4,154,749,262		
2041	66,817,933	232,828,496	299,646,429	3,800,347,963	4,099,994,392		
2042	62,069,468	217,378,460	279,447,928	3,754,320,129	4,033,768,057		
2043	57,689,739	202,978,945	260,668,684	3,697,207,383	3,957,876,068		
<sup>6</sup> 2044	53,648,212	189,370,931	243,019,143	3,630,725,591	3,873,744,734		
2045	49,916,996	176,182,112	226,099,108	3,556,599,853	3,782,698,961		
2046	46,470,608	164,003,268	210,473,877	3,476,497,372	3,686,971,248		
2047	43,285,760	151,940,354	195,226,114	3,391,968,735	3,587,194,849		
2048	40,341,160	140,565,095	180,906,255	3,304,402,299	3,485,308,554		
2049	37,617,337	130,086,132	167,703,470	3,215,000,411	3,382,703,880		
After 2049	178,802,945	919,839,906	1,098,642,851	39,752,097,101	40,850,739,952		
Total Future	\$ 2,842,884,855	\$ 8,784,959,543	\$ 11,627,844,399	\$ 125,376,543,806	\$ 137,004,388,205		

<sup>5</sup> Reflects projected cash flow through 2084

Totals may not equal sum of components because of independent rounding

**ESTIMATED LIABILITY FOR EEOICPA**  
**AS OF SEPTEMBER 30, 2024**

**SUMMARY OF DISCOUNTED EEOICPA PAYMENTS BY YEAR**

Fiscal Year	Compensation		Compensation		Medical		Total Discounted Payments
	Part B	Discounted Payments	Part E	Discounted Payments	Total	Discounted Payments	
(1)	(2)	(3)	(4)	(5)	(6)		
2025	\$ 226,735,337	\$ 483,713,657	\$ 710,448,995	\$ 2,206,285,529	\$ 2,916,734,524		
2026	211,044,269	479,404,099	690,448,367	2,356,846,671	3,047,295,039		
2027	190,307,534	465,764,118	656,071,651	2,497,617,001	3,153,688,653		
2028	170,459,566	444,195,908	614,655,474	2,616,280,208	3,230,935,682		
2029	152,930,294	421,096,379	574,026,672	2,713,954,770	3,287,981,442		
2030	137,391,454	396,702,302	534,093,756	2,770,457,090	3,304,550,847		
2031	123,575,775	372,170,956	495,746,731	2,806,990,487	3,302,737,218		
2032	111,262,324	337,459,425	448,721,749	2,824,759,127	3,273,480,876		
2033	100,265,982	313,954,747	414,220,729	2,824,970,563	3,239,191,291		
2034	90,429,791	291,561,908	381,991,699	2,808,871,818	3,190,863,517		
2035	81,619,320	268,247,498	349,866,818	2,777,760,463	3,127,627,281		
2036	73,718,451	245,532,714	319,251,165	2,732,996,807	3,052,247,972		
2037	66,626,183	224,530,762	291,156,945	2,676,014,217	2,967,171,162		
2038	60,254,156	205,073,962	265,328,118	2,608,312,036	2,873,640,154		
2039	54,524,714	187,166,306	241,691,020	2,531,433,196	2,773,124,215		
2040	49,369,349	170,772,102	220,141,451	2,446,947,768	2,667,089,219		
2041	44,709,165	155,790,026	200,499,191	2,356,428,521	2,556,927,712		
2042	40,532,743	141,952,969	182,485,712	2,261,425,394	2,443,911,107		
2043	36,766,391	129,361,016	166,127,408	2,163,439,872	2,329,567,280		
2044	33,368,151	117,785,058	151,153,208	2,063,880,269	2,215,033,477		
2045	30,300,499	106,945,657	137,246,156	1,964,021,031	2,101,267,187		
2046	27,529,870	97,157,940	124,687,810	1,864,975,317	1,989,663,126		
2047	25,026,222	87,846,282	112,872,504	1,767,677,681	1,880,550,185		
2048	22,762,664	79,314,428	102,077,092	1,672,877,764	1,774,954,856		
2049	20,715,109	71,635,808	92,350,917	1,581,147,481	1,673,498,398		
After 2049	<u>90,931,887</u>	<u>438,969,586</u>	<u>529,901,472</u>	<u>15,396,358,431</u>	<u>15,926,259,904</u>		
Total Future	\$ 2,273,157,197	\$ 6,734,105,613	\$ 9,007,262,811	\$ 75,292,729,512	\$ 84,299,992,323		

## Estimated Liability Including DOJ RECA Payments

The liability estimates within the main body of this report reflect the estimated future payments to be made by the Department of Labor under the EEOICPA.

Claimants that are awarded benefits by the Department of Justice (DOJ) under Section 5 of the Radiation Exposure Compensation Act (RECA) are also eligible to receive \$100,000 in compensation from the Department of Justice. This payment is in addition to the \$50,000 compensation benefit and medical benefits paid by the Department of Labor under EEOICPA Part B. With the 9/30/2024 report, the estimated future compensation amounts to be paid by the DOJ under RECA Section 5 are no longer being included in the main body of the EEOICPA report.

However, for purposes of reporting the total estimated liability for energy workers<sup>6</sup>, the following table represents the liability estimate for future payments for both departments combined:

### ESTIMATED LIABILITY AS OF SEPTEMBER 30, 2024

#### SUMMARY OF DISCOUNTED FUTURE PAYMENTS INCLUDING DOJ RECA SECTION 5

Fiscal Year	Compensation Part B x DOJ Discounted Payments	Compensation Part E Discounted Payments	Compensation DOJ RECA Sec 5 Discounted Payments	Compensation Total Discounted Payments	Medical Total Discounted Payments	Total Discounted Payments
(1)	(2)	(3)	(4)	(5)	(6)	(7)
<b>Total</b>						
2025-2084	\$ 2,273,157,197	\$ 6,734,105,613	\$ 45,798,907	\$ 9,053,061,718	\$ 75,292,729,512	\$ 84,345,791,230

<sup>6</sup> RECA Section 4 liability estimates are not included in the table above, as RECA Section 4 exposure is generally not employment related. RECA Section 4 claimants are individuals that were onsite for or downwind of atmospheric test detonation of a nuclear device in specific locations and timeframes.

## **Appendix 5: External Actuarial Review**

---

## Review of Estimate of EEOICPA Liability of Future Payments

# Office of Workers' Compensation Programs

## U.S. Department of Labor

Liability Estimate as of September 30, 2024

September 25, 2024

Cyprian Juma, FCAS, MAAA

Stephen L. Kolk, ACAS, MAAA

515 Madison Ave. 8th Floor  
New York, NY 10022 USA  
Tel: (646) 314-1744

[www.leptonactuarial.com](http://www.leptonactuarial.com)



## Table of Contents

Actuarial Valuation Opinion .....	1
Executive Summary.....	2
Review of Data.....	3
Review of Assumptions .....	4
Review of Methods.....	7
Review of Results and Reasonableness of Estimates .....	8
Conclusion.....	11
Glossary .....	12



## Actuarial Valuation Opinion

This report presents the results of Lepton Actuarial & Consulting, LLC ("Lepton")'s actuarial review of the September 30, 2024, estimate of future liability payments for Energy Employees Occupational Illness Compensation Program Act (EEOICPA) by the Office of Workers' Compensation Programs (OWCP).

All data and information, including claims data, financial information, and program descriptions have been provided by OWCP to be used as the basis of this review. Lepton has analyzed the data and other information for reasonableness. We have no reason to believe that the data or other information provided is not complete and know of no further information that was essential to the review.

This report was prepared for the benefit of OWCP and its auditors and may not be appropriate and should not be used for other purposes. We understand that OWCP may share the recommendations and conclusions with outside entities. However, Lepton does not intend to benefit and assumes no duty or liability to other parties who receive this work product. Any third-party recipient of this work product who desires professional guidance should not rely upon Lepton's work product but should engage qualified professionals for advice appropriate to its own specific needs. Any releases of this report to a third party should be in its entirety. Lepton does not endorse any public policy or advocacy position on matters discussed in the report.

The undersigned with actuarial credentials collectively meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

To the best of our knowledge, no real or perceived conflict of interest exists between OWCP and Lepton which would impair the objectivity of the work detailed in this report.

Sincerely,

Cyprian M. Juma  
Cyprian M. Juma (Sep 26, 2024 08:13 CDT)

Cyprian Juma, FCAS, MAAA  
Consulting Actuary

Stephen L. Kolk  
Stephen L. Kolk (Sep 25, 2024 16:02 EDT)

Stephen L. Kolk, ACAS, MAAA  
Consulting Actuary

## Executive Summary

Lepton ("the external actuary") was engaged by OWCP to conduct a thorough review of the actuarial liability model associated with EEOICPA. The engagement's scope included evaluating the reasonableness of the model's inputs and assumptions, verifying the accuracy of the cash flow, and providing a range of reasonable liability estimates.

OWCP tasked the external actuary with:

- Reviewing the EEOICPA liability estimation model provided by OWCP and offering constructive feedback on its structure and underlying assumptions.
- Assessing the liability estimate for the fiscal year, suggesting necessary adjustments, establishing a range of reasonable estimates, and producing a final External Actuarial Review report consistent with the agreed-upon formats endorsed by OWCP.
- Collaborating with OWCP staff to address any questions or concerns during the annual audit and review of liability estimates.

In pursuit of these objectives, we conduct a thorough examination of OWCP's EEOICPA model and its assumptions. A focused sensitivity analysis is performed on key assumptions that significantly impact on the overall liability when subjected to slight adjustments. This analysis identified and quantified how these critical assumptions influence the overall liability estimate. The following key assumptions are identified and analyzed to determine a reasonable range of estimates:

- **Annual Inflation for Medical Costs in Future Years (6+):** This assumption reflects the expected long-term increase in medical costs. The OWCP has set this rate at 5%. Slight adjustments can notably affect the overall liability.
- **Average Age of Employee When Case is Approved:** This factor directly impacts the expected duration and amount of medical and compensation payments. OWCP's estimate is 71 years. A variation in this age changes liability estimates due to differing payout periods.
- **Estimated Current Fiscal Year Medical Payments:** This figure, representing projected medical costs for the current fiscal year, serves as a foundation for estimating future liabilities. OWCP's estimate is \$1.98 billion. Adjustments to this estimate can significantly affect the total liability.

To understand the potential impact of changes to these assumptions, we examine two scenarios, which are discussed in further detail in the Results section:

- **Decreasing the Annual Inflation for Medical Costs in Future Years (6+) by 1%, increasing the Average Age of Employee When Case is Approved by 2 years, and increasing the Estimated Current Fiscal Year Medical Payments to \$2,003,619,803.** This scenario resulted in a -12.71% change in the overall liability estimate. This is because lowering future medical cost inflation reduces projected medical expenses, increasing the average age of approval shortens the benefit period, and decreasing current fiscal year medical payments directly reduces the liability estimate.
- **Increasing the Annual Inflation for Medical Costs in Future Years (6+) by 1%, decreasing the Average Age of Employee When Case is Approved by 2 years, and increasing the Estimated Current Fiscal Year Medical Payments to \$2,016,525,968.** This scenario resulted in a 20.81% increase in the overall liability estimate. The increased medical inflation leads to higher future costs, while approving cases at a younger age extends the duration of benefits, and higher current medical payments raise the base for future projections.

The table below summarizes the range of liability estimates derived from the scenarios above. The OWCP's estimate of **\$84,300** million is well within our calculated range of estimates. This shows that OWCP's estimate is reasonable and reliable in projecting future liabilities.

Table 1: Liability Estimate (in Millions)

	Lower Bound	OWCP's Estimate	Upper Bound
Liability Estimate	\$73,582	\$84,300	\$101,843

## Review of Data

### *OWCP's Data*

OWCP relies on historical records from EEOICPA to support its actuarial modeling process for estimating future liabilities. The fiscal year 2024 model includes several critical components.

Historical information from EEOICPA records, such as medical payments, compensation histories, and claimant demographics is gathered. This comprehensive dataset provides a clear understanding of the program's past obligations, laying the foundation for a reliable model. The data collection process ensures that all relevant information is captured to present a complete picture of the program's operational history.

Once collected, the different data components are aggregated, analyzed, and incorporated into the actuarial model. Historical medical cost data is combined with mortality assumptions to estimate the duration and amount of future medical benefits, while compensation data helps forecast the timing and size of future payouts. This integration ensures consistency across the model, enhancing its accuracy in predicting future liabilities.

### *Lepton's Assessment for Reasonableness*

Our review finds that OWCP's processes for estimating future EEOICPA benefits are comprehensive but may face challenges in accurately determining exposure and illnesses due to the historical nature of many claims. OWCP's reliance on exposure reconstructions and historical employment data introduces uncertainties, but the established protocols appear to mitigate these risks. Based on our review, the data, claims processing timeline, eligibility determinations, and benefit calculations used by OWCP are reasonable.

## Review of Assumptions

### Annual Medical Inflation

#### OWCP's Process

The OWCP incorporates the following inflation assumptions into its projections for medical costs under the EEOICPA.

Fiscal year 2025	8.3%
Fiscal year 2026	5.9%
Fiscal year 2027	5.9%
Fiscal year 2028	5.8%
Fiscal year 2029	5.8%
Fiscal year 2030 and later	5.0%

These inflation rates are used to estimate future medical liabilities, ensuring that the compensation provided keeps pace with rising medical expenses. The process involves applying annual inflation rates to project future medical expenses and incorporating these projections into the long-term financial liability estimates.

#### OWCP's Rationale

OWCP's medical inflation rates assumption reflects both current economic trends and long-term expectations for healthcare costs. For the fiscal years 2025 to 2029, the rates gradually decline from 8.3% to 5.8%, reflecting a transition from higher short-term inflation rates to more moderate rates. Starting in 2030 and beyond, a consistent inflation rate of 5.0% is assumed based on long-term projections of healthcare costs. This reflects an expectation that medical inflation rate will stabilize in the future, aligning with broader economic forecasts for healthcare spending.

#### *Lepton's Assessment for Reasonableness of this Assumption*

The inflation rates assumption is reasonable considering current trends in healthcare costs, where short-term inflation pressures are expected to be moderate over time. The projected decline from 8.3% to 5.0% by 2030 appears aligned with long-term expectations for medical inflation rates. However, given the uncertainty in healthcare cost trends, especially beyond 2030, periodic reviews and potential adjustments of these rates may be needed to ensure accuracy. Overall, the assumption provides a sound foundation for estimating future medical liabilities.

### Annual Inflation for Medical Costs in Future Years (6+)

#### OWCP's Assumption

OWCP uses inflation rates assumption to project future medical costs under EEOICPA. For fiscal year 2030 and beyond, the medical inflation rate is set at 5.0%. This assumption is applied to estimate the long-term liabilities related to healthcare costs for claimants. OWCP periodically conducts analysis to understand how changes in inflation rates affect overall liability estimate.

## *Impact of Adjusted Assumptions*

The 5.0% inflation rate for fiscal year 2030 and beyond is based on long-term expectations for healthcare cost growth. This rate reflects a stabilization of medical inflation rates over time and is aligned with broader economic forecasts. By assuming this rate, OWCP aims to account for future medical expenses without overestimating or underestimating costs, providing a balanced projection of future liabilities.

## *Lepton's Assessment of Reasonableness*

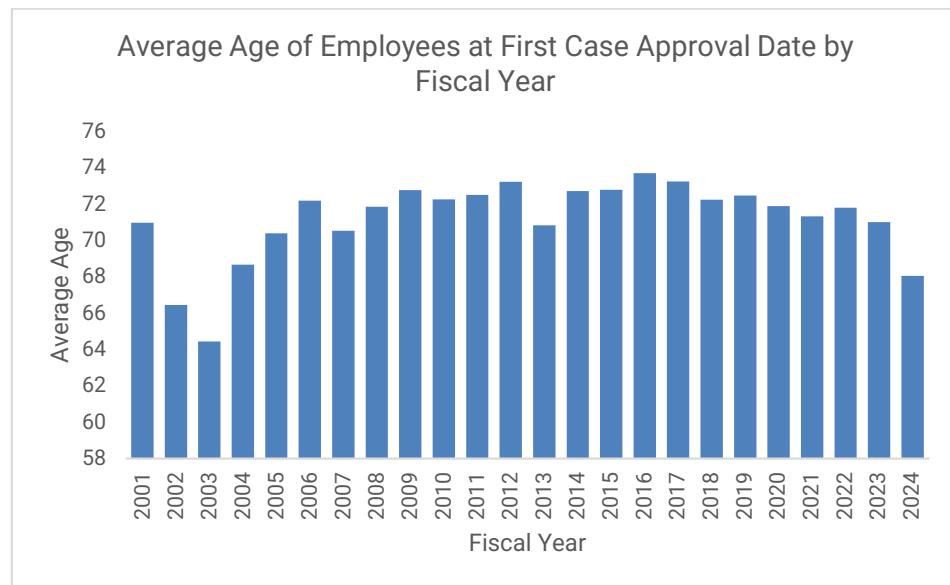
Sensitivity analysis on long-term inflation rates shows that a -1% change leads to a 9.07% decrease in overall liability estimate, while a +1% change leads to a 10.94% increase in overall liability estimate. This result demonstrates that the long-term inflation rate is a key driver of liability projections. The 5.0% assumption appears reasonable for long-term forecasting, as it reflects moderate growth in medical costs. However, given the significant impact of small adjustments, the long-term inflation rates assumption should be revisited periodically to ensure it remains aligned with actual medical inflation rate trends, especially in the volatile healthcare sector.

## **Average Age of Employee when Case is Approved**

### *OWCP's Assumption*

OWCP estimates the average age of employees when their cases are approved to be 71 years. This assumption reflects the expected age at which eligible individuals begin receiving benefits, based on historical trends and demographic patterns observed within the program.

Based on a histogram plot of fiscal year against the average age of employees at case approval (see chart below), we observe some volatility. To explore alternative scenarios, considering these historical facts, we examined the impact of increasing the assumption by two years to 73 and decreasing it by two years to 69.



## *Impact of Adjusted Assumptions*

The average age of case approval is increased by 2 years, from 71 to 73, resulting in a **-7.05%** change in the overall liability estimate. This reduction is due to the shortened expected duration of benefit payouts, as a higher approval age typically reduces the remaining life expectancy of the claimants. Consequently, the projected future medical payments and compensation liabilities are lower, resulting in a lower amount of present value of these benefits.

Conversely, the average age of case approval is decreased by 2 years, from 71 to 69, resulting in a **+7.78%** change in the overall liability estimate. Lowering the approval age extends the expected duration of benefit payouts, as younger claimants are likely to receive payments for a longer period. This leads to higher projected future costs which increases present value amounts of liabilities, hence driving the overall estimate upward.

## *Lepton's Assessment of Reasonableness*

The sensitivity analysis shows that increasing the average age by two years to 73 resulted in a **-7.05%** decrease in the liability estimate, while decreasing it by two years to 69 led to a **7.78%** increase. These findings underscore the significant impact of the average age at approval on liability projections. We find the 71-year assumption to be reasonable and reliable in determining the liability estimate. Given observed fluctuations and potential demographic changes, however, OWCP may want to reevaluate whether the 71-year assumption remains suitable for both current and future trends. Careful reassessment could ensure that liability estimates remain accurate and reflective of evolving demographic patterns.

## **Estimated Current Fiscal Year Medical Payments**

### *OWCP's Assumption*

OWCP estimates the current fiscal year's medical payments at \$1.98 billion. This figure is essential for projecting future liabilities and serves as a key input in the actuarial model.

To explore alternative estimates, we apply two different methodologies. The first scenario uses an average approach, which estimates the current fiscal year's medical payments at \$2,003,619,803. The second scenario employs a linear fit method, yielding an estimate of \$2,016,525,968. These alternative estimates offer a range of potential values for current medical payments, highlighting the impact of different estimation techniques on future liability projections.

### *Impact of Adjusted Assumptions*

Increasing the estimated medical payments to \$2,003,619,803 results in a 1.19% increase in the overall liability estimate. The higher medical payments raise the projected future costs, which contributes to the increased final liability.

Raising the estimated medical payments to \$2,016,525,968 results in a 1.84% increase in the overall liability estimate. This adjustment further elevates the projected future costs, causing a greater increase in the final liability.

## *Lepton's Assessment of Reasonableness*

Lepton's evaluation finds OWCP's estimate of \$1.98 billion for the current fiscal year's medical payments to be reasonable. By exploring alternative estimates, such as \$2,003,619,803 and \$2,016,525,968, we observe only minimal increases in the overall liability estimate. This indicates that the original estimate of \$1.98 billion effectively reflects the reliability of OWCP's calculation method, making it a sound and reasonable estimate. We recommend continuous monitoring to ensure it remains in line with actual trends and future projections.

# Review of Methods

## *OWCP's Methods*

Data organization and aggregation by OWCP involve meticulous collection of detailed claim-level data, including medical and compensation payments, claim status, and employee information. This data is then aggregated into summarized tables, which facilitates efficient analysis and allows for effective manipulation of large datasets.

When estimating future awards for Part E claims, OWCP relies on historical data and uses exponential decay models, supported by actuarial judgment. For medical claims, mortality tables are applied to refine the estimates further, taking into account the longevity of claimants.

For compensation, OWCP uses the average compensation per case for Part B varying it by the governing disease based on program provisions. For Part E, the chain-ladder method is employed to analyze historical payment data and estimate ultimate losses, including incurred but not reported (IBNR) claims. Loss Development Factors (LDFs) are used to establish payout patterns, which serve as the foundation for projecting future cash flows. Medical payments are projected using historical data adjusted for inflation according to trends in medical costs.

To present a comprehensive estimate of liability, OWCP discounts future payments to their present value using specified discount rates. This process ensures a reliable reflection of total liability as of September 30, 2024.

## *OWCP's Rationale*

OWCP's data organization and aggregation approach ensures the systematic collection and structured presentation of all relevant information, which serves as a solid foundation for liability estimation. Summarized tables provide an effective means of interpreting and analyzing extensive datasets, aiding in informed decision-making.

In estimating future awards, OWCP's reliance on historical data and exponential decay models demonstrates a commitment to identifying and following established trends, alongside the use of actuarial judgment. For medical claims, the inclusion of mortality tables reflects an understanding of how claimant life expectancy affects future liabilities.

## *Lepton's Assessment for Reasonableness*

Lepton finds OWCP's methodology for data organization and aggregation to be thorough and consistent with actuarial best practices. The systematic organization of data supports reliable analysis and future projections, laying a reliable groundwork for liability estimations.

Lepton agrees with OWCP's use of historical data and exponential decay models for projecting future awards, recognizing these as standard actuarial practices. The use of actuarial judgment to refine these projections is crucial, particularly when considering potential external changes that could affect claim frequency. Lepton also supports the use of mortality tables in estimating medical claims, noting this approach is suitable given the nature of the claimant population.

Regarding compensation payments, Lepton endorses the application of the chain-ladder method and LDFs for estimating Part E compensation payments, acknowledging this method is well-suited to the nature of these payments, which are made over time. This method effectively captures the ultimate claim costs, including those not yet reported. The chain-ladder approach provides a structured way to project future payments based on historical data, aligning with the long-term nature of Part E compensation.

The adjustments for medical inflation are seen as appropriate, given the growing costs of healthcare. However, Lepton suggests conducting periodic reviews of inflation assumptions to ensure they remain relevant to emerging trends.

Lepton concurs with OWCP's discounting approach, which presents liability estimates in present value terms. This practice is standard in actuarial assessments and ensures a realistic estimation of future financial liabilities.

## Review of Results and Reasonableness of Estimates

In evaluating the overall liability estimate for the EEOICPA, we focus on assessing the assumptions and methodologies used by OWCP to ensure their reasonableness and appropriateness. This summary outlines our review of key assumptions, including inflation rates, discount rates, data quality, and overall methodology, to determine whether the final results align with established actuarial standards and economic expectations.

### Key Assumptions and their Impact

- **Annual Inflation for Medical:**  
The inflation assumption begins with a higher rate in the initial years, then drops to a lower rate in the fifth year and stabilizes at a constant rate for the long-term period thereafter. This approach accounts for early-period inflationary pressures and anticipated stabilization over time. The initial increase addresses short-term fluctuations, while the drop reflects expected moderation. The long-term stable rate is used to project future medical costs beyond this period. Given the variability and uncertainty in medical inflation rates, this approach is crucial. The selected rates appear reasonable based on current economic forecasts but should be reviewed and adjusted as conditions change.
- **Average Age of Employees when Case Approved:**  
The average age represents the typical age of claimants in the program when a case is approved. This assumption directly impacts the duration of benefit payments. A younger average age would extend the payment period, increasing the liability, whereas an older average age would shorten it. While the assumption is reasonable, it should be periodically reassessed to account for any changes in the demographic profile of claimants.
- **Estimated Current Fiscal Year Medical Payments:**  
This estimate, based on current claims data and expected payment patterns, sets the baseline for future medical payment projections. Reasonable estimation here is critical, as any underestimation or overestimation could skew the liability estimate. The current estimate seems reasonable given the existing trends in medical payments.
- **New Case Ending Fiscal Year:**  
This assumption reflects trends in case filings and the anticipated decline in new cases over time. Extending the projection period to 2055 is reasonable, although it presents some uncertainty. Regular updates to this assumption may be necessary as trends evolve.
- **Compensation Benefit Amounts:**  
The methodology for calculating average compensation for Part B adheres to established program provisions and is deemed reasonable. The application of the chain-ladder method for Part E is appropriate, given its effectiveness in handling historical payment data and estimating future liabilities, considering the incremental nature of the payouts. The approach to forecasting medical benefits is also reasonable, as it incorporates inflation and historical payment data trends to ensure realistic projections.
- **Discount Rates:**  
These rates, based on long-term economic forecasts, are used to calculate the present value of future payments. The selected discount rates align with current economic conditions and are deemed reasonable. However, they should be reviewed regularly to reflect any changes in interest rates and inflation.
- **Discount Period:**  
The 60-year discount period is appropriate for capturing long-term liabilities, ensuring that future payments are fully accounted for.
- **Duration of Benefits:**  
The durations are based on historical payment patterns and the expected longevity of claimants. These durations align with observed trends and are considered reasonable, though they should be updated as new data becomes available.
- **Mortality Table and Multiplier:**  
The use of a static mortality table, with a multiplier of 1.00, simplifies calculations but assumes no future changes in mortality trends. While this approach is reasonable for current estimates, it may underestimate future liabilities if mortality rates improve.

- **New Cases and Decay Rates:**

These rates represent the expected decline in new case approvals over time. The decay rates are reasonable but should be reviewed regularly to ensure they reflect current trends.

- **Payment Patterns:**

Payment patterns for Part E compensation, distributed over multiple years, are based on historical data, and accurately reflect how benefits are typically distributed. These patterns are deemed reasonable and ensure reliable projections of future liabilities.

### *Range of Reasonable Liability Estimates*

We conduct a focused sensitivity analysis to establish a reasonable range of liability estimates based on assumptions identified as critical in the model. The objective is to come up with a range of reasonable estimates.

The following assumptions are chosen because they are identified as the most critical due to their impact on the overall liability estimate:

**Annual Inflation for Medical Costs in Future Years (6+):** This assumption reflects the expected long-term increase in medical costs. It is used from future year 6 to the last projection year. This period is a significant portion of the liability horizon making this assumption critical in determining the overall liability estimate.

**Average Age of Employee When Case is Approved:** This factor directly impacts the expected duration and amount of benefit payments. The overall liability estimate is sensitive to this assumption.

**Estimated Current Fiscal Year Medical Payments:** This figure, representing projected medical costs for the current fiscal year, serves as a foundation for estimating future liabilities. It is divided by number of eligible individuals to calculate Average medical payments per individual. This is important to consider as medical payments constitute a significant portion of this fund.

From these assumptions we produce two scenarios whose findings are discussed below.

### *Findings*

**Scenario 1: Decreasing the Annual Inflation Rates for Medical Costs in Future Years (6+) by 1%, increasing the Average Age of Employee when Case is Approved by 2 years, and increasing the Estimated Current Fiscal Year Medical Payments to \$2,003,619,803.**

This scenario results in a **-12.71%** change in the overall liability estimate. This is because lowering future medical costs inflation rates reduces projected medical expenses, increasing the average age of approval shortens the benefit period, and increasing current fiscal year medical payments directly reduces the liability calculation.

**Scenario 2: Increasing the Annual Inflation Rates for Medical Costs in Future Years (6+) by 1%, decreasing the Average Age of Employee when Case is Approved by 2 years, and increasing the Estimated Current Fiscal Year Medical Payments to \$2,016,525,968.**

This scenario results in a **+20.81%** change in the overall liability estimate. Increasing medical inflation rates leads to higher future costs, while approving cases at a younger age extends the duration of benefits, and higher current medical payments raises the base for future projections.

*Table 2: Comparison of OWCP and Lepton Estimates (in Millions)*

	Total Future Payments (Scenario 1)	OWCP's Estimate	Total Future Payments (Scenario 2)
Total Future Payments	\$73,582	\$84,300	\$101,843
Difference	-12.714%		20.81%

## *Range of Reasonable Estimates*

Based on Lepton's review, the range of reasonable estimates between the two scenarios, offer a plausible range of future outcomes:

- **Lower Bound (Scenario 1):** With a total future payment estimate of **\$73,582 million**, Lepton's Scenario 1 reflects an optimistic assumption of reduced medical payments, stemming from lower medical inflation and a faster decline in active medical claims.
- **Upper Bound (Scenario 2):** Lepton's more pessimistic Scenario 2 projects total future payments of **\$101,843 million**, assuming higher medical costs and a more prolonged claim duration.

This range provides a comprehensive perspective on the potential future liabilities, with OWCP's estimate of **\$84,300 million** being well within our range of estimates. Both scenarios account for plausible variations in healthcare inflation, claimant retention, and compensation patterns.

## *Assessment of Reasonableness*

Overall, the assumptions used by OWCP in estimating liabilities under the EEOICPA are reasonable and well-supported by historical data, industry studies, and actuarial standards. Each assumption is subjected to sensitivity analysis, revealing that the overall liability estimates are relatively robust against minor adjustments. This indicates that OWCP's approach is sound, and the results are reliable estimates of future liabilities.

The slight variations observed in the sensitivity analyses, whether due to changes in inflation rates, discount rates, demographic factors, or medical costs, suggest that the final results are not overly sensitive to any single assumption. This robustness is a positive indicator of the overall reliability of the overall liability estimates.

## Conclusion

The review of the final results indicates that OWCP's assumptions and methodology are appropriate for estimating future liabilities under the EEOICPA. The assumptions have been validated through sensitivity analyses and are supported by historical data and industry studies. While the overall liability estimate is within the range of reasonable estimates, it is important to note that actual realized results could differ materially if a combination of the assumptions differed to those assumed in the model. Regular reassessment of these assumptions is crucial in ensuring reliability of estimates.

# Glossary

## *Applicable Standards*

- **U.S. Department of the Treasury:**

**Discount Rates:** The U.S. Department of the Treasury certifies the discount rates used to estimate the present value of future EEOICPA benefit payments. These rates are crucial for calculating the discounted liability and ensuring consistency with federal financial practices.

- **Actuarial Standards of Practice (ASOPs):**

**ASOP No. 35: Selection of Demographic and Other Non-economic Assumptions for Measuring Liabilities:** This standard provides guidance on selecting assumptions related to demographic factors like age and mortality. For EEOICPA, this includes assumptions related to claimant demographics and the likelihood of developing covered illnesses.

**ASOP No. 23: Data Quality:** This standard emphasizes the importance of ensuring that data used in actuarial calculations is accurate, reliable, and sufficient. For EEOICPA, this involves verifying claims data, compensation amounts, and medical expenses to support accurate liability estimates.

**ASOP No. 27: Selection of Economic Assumptions for Measuring Liabilities:** This standard guides the selection of economic assumptions, including discount rates and inflation rates. In the context of EEOICPA, it involves choosing appropriate rates to discount future benefit and medical expense payments.