

John Hancock Life Insurance Company (U.S.A.)
Actuarial Memorandum for Inforce Rate Increase – Custom Care II 2010
April 26, 2023

<u>Product Name</u>	<u>Form Number</u>	<u>Issue Date Range</u>
Custom Care II Enhanced (2010)	LTC-03 MD 6/10	Nov 2010 - Dec 2011

These policy form rates were originally priced with a margin for moderately adverse experience in accordance with the NAIC model rate stability regulations which were being implemented on a State by State basis during the time of our initial rate filing.

1. Scope & Purpose

This memorandum consists of materials which support the development of new premium rates for the above captioned policy series forms. The purpose of this memorandum is to demonstrate that the requirements of this State in regards to an in force rate increase request have been met. This rate filing is not intended to be used for any other purpose.

2. Justification for Rate Increase

John Hancock has completed our most recent triennial comprehensive long-term care experience study which examines the usage trends for our insured population. Relative to previous expectations, the new data demonstrates lower mortality for non-claimants, higher utilization of benefits, and lower than expected claim terminations, partly offset by lower claim incidence. Based on that data, we have determined that there is a need to increase premiums on certain policy series. Further detail on assumptions and our analysis is provided in **Addendum #1 - Assumptions and Analysis Performed.**

3. Requested Rate Increase

The Company is requesting an average rate increase of 35.9%, which varies by inflation option, and ranges from 32.3% to 48.3%. Rate increases were derived as outlined below, ensuring at each step that the proposed rate increases did not result in premium rates that exceed rates for older issue ages:

1. The Company first determined the projected lifetime loss ratio for this form based on nationwide actual experience and projected future experience assuming the prior rate increase request was approved in full and within three months of the original filing date. We then determined the amount of rate increase (37.2%) that would be needed to satisfy the rate stability rule ensuring a loss ratio no less than 85% (or the original pricing loss ratio if greater) on the rate increase portion, while applying 58% (or the original pricing loss ratio if greater) on the original rate schedule.
2. Rate increases were adjusted to account for the timing of approvals on prior filings in your State. Adjustments are proportional to the amounts requested in prior filings and were determined to satisfy the rate stability rule. After the application of this adjustment, the average rate increase for the forms listed in this memo is a flat 37.4%.
3. Unapproved rate increases initially requested in our prior inforce rate filing (SERFF Tracking No. MULF-131257459) were included in this filing. These rate increases continue to be actuarially justified and are unchanged from our original request with the following exception: to account for the delayed implementation of the originally-requested rate increases, we have adjusted the portion of the current proposed rate increases attributable to the remainder so that on a present-value basis it is equivalent to implementing our original request all at once. After taking the unapproved amount into account and applying this adjustment, the average rate increase for the forms listed in this memo is a flat 48.3%.
4. After applying the projected gains from improved hedge terms as a reduction to claims, we ensured that the resulting overall increase in rates continues to satisfy the rate stability rule. This is demonstrated at

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the bottom of Exhibit 1 where it can be seen that the sum of past and future projected incurred claims excluding past losses is not less than the sum of the original premium times the greater of 58% and the original pricing loss ratio and the rate increase premium times the greater of 85% and the original pricing loss ratio. The resulting average rate increase for CPI policies, reduced for the projected hedge gains, is a flat 32.3%, while the resulting rate increase for non-CPI policies is a flat 48.3%.

5. In accordance with COMAR 31.14.01.04(A)(5), we are willing to phase-in the requested rate increase on an equivalent basis such that the maximum annual rate increase does not exceed 15%.

A summary of proposed rate increases can be found in **Appendix A**.

In the rate schedules by policy form, **Appendix B1** contains the new proposed rate tables for all policy forms included with this filing for those policyholders that *never* elected an inflation reduction option as part of the 2013 rate increase filing.

In the rate schedules by policy form, **Appendix B2** contains the new proposed rate tables for all policy forms included with this filing for those policyholders that *did* elect an inflation reduction option as part of the 2013 rate increase filing.

Please note that the actual rates implemented may vary slightly from those in the Appendices due to implementation rounding algorithms.

Exhibit 1 contains nationwide past premium and claims experience as well as future premium and claim projections and hedge gains. Waived premiums are not included. It illustrates that the anticipated lifetime loss ratio, net of hedge gains and with the requested rate increase is 68.5%, compared to the original pricing loss ratio (updated for actual CPI) of 64.3%. The lifetime loss ratio as of 12/31/2021 is calculated as the sum of accumulated past and discounted future claims less hedge gains divided by the sum of accumulated past and discounted future earned premium where accumulation and discounting occur at the maximum statutory valuation discount rate.

In addition, **Exhibit 1** contains the original expected loss ratio projections with the lifetime loss ratios calculated as stated above, adjusted for the following.

- For contracts with the CPI linked inflation rider, both past and future benefits were updated to reflect the impact of actual past CPI rates differing from the original pricing assumption. In this way, the current projected benefits and the benefits projected in original pricing are based on the same level of CPI indices. This adjustment is needed to neutralize the impact on the rate increase for differences in actual past CPI from original pricing assumptions; i.e. the need for a rate increase and the level of a rate increase is not dependent on changes in the CPI levels. Adjustments will be made in both directions (i.e. when actual CPI is higher or lower than original pricing).
- Updated to reflect the actual mix of business sold.

Furthermore, **Exhibit 1** demonstrates that the calculated loss ratio respects the applicable pre and post stability requirements:

Post-stability form requirements:

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The sum of the accumulated value of incurred claims without the inclusion of active life reserves, and the present value of future projected incurred claims, without the inclusion of active life reserves, will not be less than the sum of the following:

1. Accumulated value of the initial earned premium times the greater of the original assumed lifetime loss ratio and 58%,
2. Accumulated value of prior premium rate schedule increases times the greater of the original assumed lifetime loss ratio and 85%,
3. Present value of future projected initial earned premium times the greater of the original assumed lifetime loss ratio and 58%, and
4. Present value of future projected premium in excess of the projected initial earned premium times the greater of the original assumed lifetime loss ratio and 85%.

Pre-stability form requirements:

The sum of the accumulated value of incurred claims without the inclusion of active life reserves, and the present value of future projected incurred claims, without the inclusion of active life reserves, will not be less than the sum of the following:

1. Accumulated value of the initial earned premium times the greater of the original assumed lifetime loss ratio and 60%,
2. Accumulated value of prior premium rate schedule increases times the greater of the original assumed lifetime loss ratio and 80%,
3. Present value of future projected initial earned premium times the greater of the original assumed lifetime loss ratio and 60%, and
4. Present value of future projected premium in excess of the projected initial earned premium times the greater of the original assumed lifetime loss ratio and 80%.

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4. Nationwide Loss Ratio Exhibit (Exhibit 1)

Custom Care II Enhanced (LTC-03) - 2010 Rates

Calendar Year	Original Assumptions			Historical & Projected Experience			With Proposed Rate Increase		
	Incurred Claims	Earned Premium	Incurred Loss Ratio	Incurred Claims	Earned Premium	Incurred Loss Ratio	Incurred Claims	Earned Premium	Incurred Loss Ratio
2003	-	-	0%	-	5,627	0%	-	5,627	0%
2004	-	-	0%	-	9,762	0%	-	9,762	0%
2005	-	-	0%	-	9,762	0%	-	9,762	0%
2006	-	-	0%	-	19,503	0%	-	19,503	0%
2007	-	-	0%	-	30,334	0%	-	30,334	0%
2008	-	-	0%	-	40,552	0%	-	40,552	0%
2009	-	-	0%	-	45,298	0%	-	45,298	0%
2010	34,519	7,552,342	0%	-	8,003,357	0%	-	8,003,357	0%
2011	612,999	33,420,387	2%	87,696	34,215,786	0%	87,696	34,215,786	0%
2012	1,352,566	35,322,207	4%	1,012,968	34,934,423	3%	1,012,968	34,934,423	3%
2013	2,214,163	34,470,488	6%	761,328	34,202,310	2%	761,328	34,202,310	2%
2014	3,108,103	33,770,629	9%	1,116,142	34,428,427	3%	1,116,142	34,428,427	3%
2015	3,981,474	33,110,380	12%	1,394,793	36,851,611	4%	1,394,793	36,851,611	4%
2016	4,509,163	32,418,613	14%	2,257,458	36,096,230	6%	2,257,458	36,096,230	6%
2017	5,360,575	31,692,620	17%	2,722,568	35,995,250	8%	2,722,568	35,995,250	8%
2018	6,393,390	30,925,398	21%	4,035,328	36,330,694	11%	4,035,328	36,330,694	11%
2019	7,369,123	30,113,127	24%	5,123,465	35,383,703	14%	5,123,465	35,383,703	14%
2020	8,435,100	29,262,303	29%	4,832,530	34,955,332	14%	4,832,530	34,955,332	14%
2021	9,274,090	28,377,994	33%	9,526,685	34,004,323	28%	9,526,685	34,004,323	28%
2022	10,440,346	27,458,393	38%	10,830,953	33,385,832	32%	10,830,953	33,385,832	32%
2023	11,118,863	26,498,903	42%	12,733,163	32,505,761	39%	12,733,163	32,505,761	39%
2024	12,386,613	25,522,438	49%	14,674,949	31,651,172	46%	14,550,212	41,207,861	35%
2025	14,005,791	24,507,500	57%	16,929,371	30,745,562	55%	16,641,572	41,028,343	41%
2026	15,359,396	23,451,722	65%	19,238,457	29,762,061	65%	18,911,404	39,702,486	48%
2027	17,228,201	22,353,333	77%	21,779,443	28,717,415	76%	21,409,192	38,295,781	56%
2028	19,457,513	21,214,355	92%	24,776,895	27,614,936	90%	24,355,688	36,812,524	66%
2029	21,547,115	20,038,624	108%	27,992,052	26,464,633	106%	27,516,187	35,266,678	78%
2030	23,497,094	18,832,357	125%	31,405,618	25,272,340	124%	30,871,722	33,665,998	92%
2031	24,604,403	17,601,595	140%	34,872,813	24,030,384	145%	34,279,976	32,000,641	107%
2032	26,415,983	16,351,792	162%	38,421,677	22,727,896	169%	37,768,508	30,256,107	125%
2033	28,509,444	15,087,892	189%	41,972,870	21,379,666	196%	41,259,331	28,452,014	145%
2034	30,184,105	13,822,940	218%	45,327,229	19,987,960	227%	44,556,667	26,591,408	168%
2035	31,398,285	12,571,305	250%	48,416,893	18,563,040	261%	47,593,806	24,687,991	193%
2036	30,325,480	11,358,528	267%	51,131,734	17,120,300	299%	50,262,495	22,762,163	221%
2037	30,538,365	10,204,833	299%	53,265,520	15,680,579	340%	52,360,006	20,841,872	251%
2038	31,337,226	9,115,154	344%	54,813,286	14,259,769	384%	53,881,460	18,948,075	284%
2039	31,628,045	8,091,101	391%	55,792,333	12,872,153	433%	54,843,864	17,099,688	321%
2040	31,457,971	7,137,757	441%	56,067,666	11,532,722	486%	55,114,515	15,316,488	360%
2041	28,879,169	6,258,474	461%	55,639,609	10,238,419	543%	54,693,736	13,594,280	402%
2042	27,599,454	5,455,436	506%	54,321,237	9,016,043	602%	53,397,777	11,968,580	446%
2043	26,977,494	4,726,539	571%	52,536,101	7,891,180	666%	51,642,986	10,473,263	493%
2044	25,947,761	4,067,575	638%	50,405,587	6,864,150	734%	49,548,692	9,108,562	544%
2045	24,651,479	3,478,705	709%	47,889,253	5,933,202	807%	47,075,136	7,872,021	598%
2046	21,674,015	2,957,150	733%	45,043,319	5,097,855	884%	44,277,583	6,762,942	655%
2047	19,707,285	2,499,044	789%	42,015,485	4,351,020	966%	41,301,222	5,771,572	716%
2048	18,366,445	2,098,325	875%	38,878,004	3,689,716	1054%	38,217,078	4,893,935	781%
2049	16,876,359	1,749,052	965%	35,671,341	3,108,837	1147%	35,064,928	4,123,186	850%
2050	15,332,320	1,448,795	1058%	32,463,564	2,602,493	1247%	31,911,683	3,451,452	925%
2051	13,011,123	1,192,850	1091%	29,252,227	2,164,523	1351%	28,754,939	2,870,514	1002%
2052	11,316,737	976,994	1158%	26,121,317	1,788,755	1460%	25,677,254	2,372,147	1082%
2053	10,064,558	795,991	1264%	23,182,093	1,468,919	1578%	22,787,997	1,948,016	1170%
2054	8,782,917	644,677	1362%	20,381,787	1,198,819	1700%	20,035,297	1,589,875	1260%
2055	7,592,310	520,379	1459%	17,776,171	972,572	1828%	17,473,976	1,289,914	1355%

Note: Please refer to the Actuarial Memorandum, section "Ensuring No Cross-Subsidization Between States", for adjustments made to experience exhibits

Values as of 12/31/2021 (discounted at maximum statutory valuation rates)

Past :	61,198,131	456,431,297	13.4%	37,133,047	496,881,226	7.5%	37,133,047	496,881,226	7.5%
Future :	404,155,371	267,663,221	151.0%	658,499,495	359,625,302	183.1%	647,802,737	456,973,331	141.8%
Lifetime :	465,353,502	724,094,518	64.3%	695,632,541	856,506,528	81.2%	684,935,784	953,854,557	71.8%
Lifetime Net of Hedges :	465,353,502	724,094,518	64.3%	664,321,519	856,506,528	77.6%	653,624,761	953,854,557	68.5%

Total Incurred Claims exceed Total Initial Premiums x max(58%, Original Pricing Loss Ratio) + Increased Premiums x max(85%, Original Pricing Loss Ratio)

Impact of Improved Hedge Terms =	(31,311,023)	Accum Value of Past Initial Prm x 64.3% =	294,173,384
Minimum (Accum Value of Past Incurred Claims,		Present Value of Future Initial Prm x 64.3% =	192,958,160
Accum Value of Adjusted Expected Incurred Claims) =	37,133,047	Accum Value of Prior Increases x 85.0% =	33,272,923
Present Value of Future Incurred Claims =	647,802,737	Present Value of Future Increases x 85.0% =	133,219,294
Total =	653,624,761	Total =	653,623,761

Total Incurred Claims exceed Total Initial Premiums x max(60%, Original Pricing Loss Ratio) + Increased Premiums x max(80%, Original Pricing Loss Ratio)

Impact of Improved Hedge Terms =	(31,311,023)	Accum Value of Past Initial Prm x 64.3% =	294,173,384
Minimum (Accum Value of Past Incurred Claims,		Present Value of Future Initial Prm x 64.3% =	192,958,160
Accum Value of Adjusted Expected Incurred Claims) =	37,133,047	Accum Value of Prior Increases x 80.0% =	31,315,692
Present Value of Future Incurred Claims =	647,802,737	Present Value of Future Increases x 80.0% =	125,382,865
Total =	653,624,761	Total =	643,830,101

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5. Proposed Effective Date

These rates will be effective on the next policy anniversary date, following at least a 90 day policyholder notification period. The assumed effective date used to calculate the rate increase is 01/01/2024.

6. History of Previous Rate Revisions

A 12.5% rate increase on these policy forms was accepted by your state on September 29, 2014.

A 5.0% rate increase on these policy forms was accepted by your state on April 13, 2018.

7. Reduced Benefit Options (RBOs)

If the full or substantial portion of the rate increase request is approved and per the state's agreement, we will file the following additional options which would provide policyholders alternatives to the rate increase:

- ***Inflation Landing Spots***

Future inflation options (also referred to as “landing spots”) allow policyholders that have Compound or Simple inflation coverage the option to offset the rate increase. Under these options, the policyholders get to keep their current accumulated Daily benefit and their current remaining Lifetime Maximum Benefit, but the future indexation rate will be reduced to a level which is actuarially equivalent to the requested rate increase in aggregate. These options are not available to limited pay policies or policyholders who have elected three prior inflation reductions.

- ***Shared Cost Option***

Shared Cost option is an actuarially equivalent option that allows policyholders the option to offset the rate increase. The Shared Cost option would:

- Reduce the policyholder's current policy benefit amounts by their Shared Cost percentage. The daily/monthly benefit and the policy limit will be reduced by the Shared Cost percentage
- Apply a percentage factor to any future claim payments equal to the Shared Cost percentage. John Hancock will pay our portion (1 minus the Shared Cost percent) of any covered services, but will not pay more than the new reduced daily/monthly benefit amount and the policyholder will be responsible for the remainder.

Shared Cost Percentages are calculated using seriatim, nationwide data for each benefit period, inflation type and issue age band combination. All Shared Cost percentages are determined to be actuarially equivalent to the requested rate increases by combination of 5-year issue age band, benefit period and inflation type. The Shared Cost option is not available to limited pay policies or policyholders who have elected two prior Shared Cost options.

- ***Voluntary Enhanced Paid-Up Policy Option***

For those who choose to stop paying premiums, this option will be a paid-up policy with a policy limit equal to the lesser of the current policy limit and 150% of premiums paid less any benefits received.

The premium rate tables reflecting these options will be filed upon request following a full or substantial approval.

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8. State Policyholder Counts & Average Annual Premium

The table below summarizes the number of policies inforce that could be affected by the rate increase in your state and their annualized premiums, as well as the average annual premium per policy before and after the requested increase.

Counts and premiums are based on policies inforce as of 12/31/2021. Premium-paying policies as well as policies on claim are included, since although the premium for policies on claim is currently waived, they could be subject to the rate increase upon recovery. Paid-up policies and policies which have exercised the nonforfeiture benefit option are excluded.

Form	Number of Policies	2021 Annualized Premium*	2021 Average Annual Premium Before the rate increase*	2021 Average Annual Premium After the rate increase
LTC-03 MD 6/10	171	501,444	2,930	3,981

*Premiums reflect the rate increases approved in prior filing(s), including approvals where implementation is not yet complete

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9. State and Nationwide Distribution of Business as of December 31, 2021

The state-specific and nationwide distribution of business for policyholders impacted by the rate increase is shown below by inflation type, benefit period, and issue age. The breakdown of business by Premium Payment Option is also included to show the number of policyholders no longer paying premiums due to nonforfeiture election or paid-up status.

Inflation Type

State	GPO	Simple	Compound	CPI	Total
NW	13%	5%	4%	78%	100%
MD	8%	5%	3%	84%	100%
NW	1,601	582	501	9,734	12,418
MD	14	9	5	143	171

Benefit Period

State	1 yr	2 yr	3 yr	4 yr	5 yr	6 yr	10 yr	Total
NW	0%	7%	35%	23%	23%	9%	3%	100%
MD	0%	5%	41%	22%	16%	13%	2%	100%
NW	3	907	4,368	2,846	2,876	1,074	344	12,418
MD	0	9	70	38	28	22	4	171

Issue Age

State	< 40	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80+	Total
NW	1%	2%	6%	14%	26%	30%	16%	5%	1%	0%	100%
MD	1%	1%	13%	13%	30%	29%	10%	3%	0%	0%	100%
NW	110	209	722	1,687	3,280	3,745	1,977	559	118	11	12,418
MD	1	2	22	23	52	49	17	5	0	0	171

Premium Payment Option

State	Lifetime Pay	On Claim	Limited Pay	NFO*	Limited Pay, Paid Up*	Survivorship Waiver of Premium*	Total
NW	95%	1%	1%	1%	3%	0%	100%
MD	97%	1%	1%	0%	2%	0%	100%
NW	12,231	113	74	111	334	8	12,871
MD	169	1	1	0	3	0	174

*Policies not included in distributions by count shown above as they are not impacted by the rate increase.

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10. Benefit Description(s)

A brief policy description for each of the policy forms:

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Individually underwritten long-term care policies that provide comprehensive long-term care coverage for care received in a nursing home or assisted care living facility, home health care, hospice care, respite care, or attendance at an Adult Day Care Center providing Adult Day Care.

Provides reimbursement of covered long-term care expenses incurred after an elected elimination period is met, up to the maximum daily/monthly amount. The benefit eligibility is determined based on the insured's cognitive impairment or their requiring physical assistance to perform two out of six activities of daily living (ADLs) of bathing, dressing, eating, toileting, transferring and maintaining continence.

Premiums are waived after the insured has met the elimination period and is receiving benefits and will continue to be waived until the insured stops receiving such benefits.

11. Renewability

All policy forms are guaranteed renewable.

12. Applicability

This filing is applicable to in force policies only, as these policy forms are no longer being sold in the market. The premium changes will apply to the base forms as well as all applicable riders.

13. Trend Assumptions

As this is not medical insurance, we have not included any explicit medical cost trends in the projections.

14. Marketing Method

This product was typically marketed through our traditional agency system and brokers involving a personal contact with each applicant.

15. Underwriting

These policy forms were underwritten using a medical and risk questionnaire. We also utilized Attending Physician Statement and personal interviews depending on the age of the applicant and medical conditions.

16. Premium Classes

The base policy premium rates vary by issue age, benefit period, inflation option, home health care maximum benefit percentage, and underwriting class, as in the initial rate filing.

All premium factors related to the insured elected benefit design options or any eligible discount remain unchanged from the initial rate filing.

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17. Premium Modalization Rules

Frequency	Multiple of Annual Premium
Semiannual	.52
Quarterly	.27
Monthly	.09

18. Issue Age Range

The issue age range is 18-84 for all policy forms.

19. Area Factors

Area factors are not applicable to any of the policy forms or riders.

20. Reserves

Active Life Reserves have not been used in this rate increase demonstration. Minimum Statutory Claim reserves as of 12/31/2021 have been discounted to the date of incurral of each respective claim and included in the historical incurred claims. Incurred But Not Reported claim reserves as of 12/31/2021 have also been allocated to the calendar year of incurral and included in historic incurred claims.

21. Data Credibility

Regarding the credibility of data for younger blocks of business such as Custom Care II 2010, the Company would like to draw attention to the American Academy of Actuaries Issue Brief “Understanding Premium Rate Increases on Private LTCI Policyholders 060216.pdf”, which has been included with this filing. The brief provides guidance on determining the need for premium rate increases on pages 4 and 5. This guidance includes a discussion on determining assumptions used for projections, particularly in situations where experience credibility may be low. Because of the long duration nature of Long Term Care policies, claims are often not seen in early durations which leads to lower credibility in actual experience for younger groups of policies. In situations where this is the case, the Actuarial Standards of Practice require that industry data or company data for older, similar business be used to set assumptions. Specifically, the brief states the following:

“Section 3.2.1 of Actuarial Standard of Practice No. 18, Long-Term Care Insurance, requires actuaries to use alternative data sources such as public data or experience from the insurance company’s older, similar policy forms for identifying reasonable assumptions. Waiting until there is adequate claim information on each policy form could result in much larger, less affordable rate increases.”

Since Custom Care II 2010 is a younger block of business, our proposed rate increases on this form are based on our experience from this form as well as similar forms where we have over 20 years of experience. Overall, our unfavorable morbidity experience is at later durations and older attained ages, where we have significant data on our older plans and less on younger ones. With our combined data we are able to make credible decisions regarding future assumptions, in accordance with ASOP 18. Focusing solely on past experience for this product discredits our future projections and prevents us from acting on this information in a timely manner. Delaying rate increases until we have amassed similar experience on this particular policy form would

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take a considerable amount of time and would result in much higher rate increases for our customers which would be more difficult to manage and would require larger reductions in benefits in order to mitigate them.

22. Ensuring No Cross-Subsidization Between States

We have ensured no state's rate increase approvals will subsidize other states' rate increases. Rate increases will vary by state, but only to reflect the timing and amount of prior rate increases approved by that state. This is accomplished by first backing-out all prior approved rate increases from our nationwide premium data. We then re-introduce actual prior rate increases with the amount and timing based on your state's prior approvals (as detailed in the section entitled **History of Previous Rate Revisions**). The current proposed rate increases are then determined based on the amounts needed in order to achieve our target lifetime loss ratios certified to in our prior filing.

Although some states may have capped our previous inforce rate increase filings, in each case this was done with the understanding that the full amount of the proposed rate increases were justified and that John Hancock would be refiling for the remainder at a later date. In instances where the remainder remains unapproved, it has been included in the current filings.

23. Past Losses Testing

Preventing companies from recouping past losses was the subject of a discussion by the NAIC in late 2013. The accepted methodology which was incorporated into the 2014 Long Term Care Model Regulation defines past losses as actual past claims less expected past claims when determining loss ratio compliance. Expected past claims are defined as the following:

“Expected claims shall be calculated based on the original filing assumptions assumed until new assumptions are filed as part of a rate increase. New assumptions shall be used for all periods beyond each requested effective date of a rate increase [regardless of whether or not the rate increase is approved]. Expected claims are calculated for each calendar year based on the in-force at the beginning of the calendar year. Expected claims shall include margins for moderately adverse experience; either amounts included in the claims that were used to determine the lifetime loss ratio consistent with the original filing or as modified in any rate increase filing.”

We apply this methodology in demonstrating that we are not recouping past losses.

The ‘Adjusted Expected Incurred Claims’ are initially calculated by applying the original pricing durational loss ratio to the actual earned premium in a given calendar year. Later, in years in which and after which we filed for inforce rate increases, expected incurred claims are based on the new assumptions that were filed.

The accumulated value of the Adjusted Expected Incurred Claims is compared to the accumulated value of Actual Incurred Claims. The lesser of the Adjusted Expected Incurred Claims or Actual Incurred Claims is used for past claims when ensuring that the resulting overall increase in rates satisfies the rate stability rule ensuring a loss ratio no less than 85% (or the original pricing loss ratio if greater) on the rate increase portion, while applying 58% (or the original pricing loss ratio if greater) on the original rate schedule. This is demonstrated at the bottom of **Exhibit 1**. The derivation of Adjusted Expected Incurred Claims and comparison to Actual Incurred Claims can be seen in **Addendum #2 – Demonstration of not Recouping Past Losses**.

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24. Actuarial Certification

I am a Fellow of the Society of Actuaries and a Member of the American Academy of Actuaries, and I meet the Academy's qualification standards for rendering this opinion and am familiar with the requirements for filing long-term care insurance premiums and filing for increases in long-term care insurance premiums. This memorandum has been prepared in conformity with all applicable Actuarial Standards of Practice, including ASOP No. 8.

The preceding Actuarial Memorandum contains:

- a) the assumptions on which this certification is based;
- b) the adjustments to prior assumptions with an explanation of the reasons previous assumptions were not realized;
- c) a lifetime projection of the prior premium rate schedules and incurred claims plus future expected premiums and claims which demonstrates that the revised premium rate schedule meets the loss ratios standards and necessary details of this state; and
- d) disclosure of the manner, if any, in which reserves have been recognized.

If the requested premium rate schedule increase is implemented and the underlying assumptions which reflect moderately adverse conditions are realized, no further premium rate schedule increases are anticipated.

I have reviewed and taken into consideration the policy design and coverage provided, and our current underwriting and claims adjudication processes.

In forming my opinion, I have used actuarial assumptions and actuarial methods and such tests of the actuarial calculations as I considered necessary. Based on these assumptions or statutory requirements where necessary, the premium rate filing is in compliance with the loss ratio standards of this state.

The basis for contract reserves has been previously filed and there is no anticipation of any changes.



Katherine A Gillis
Katherine A Gillis, FSA, MAAA
Actuary, Long Term Care Inforce Management
John Hancock Life Insurance Company

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Addendum #1 - Assumptions and Analysis Performed

As part of the inforce management of the business, the Company monitored the performance of the business by completing periodic analysis for morbidity, voluntary lapse rates, and mortality. The findings from these analyses were used in projecting the inforce business to determine the effect of experience on the projected lifetime loss ratio. The most current studies show unfavorable trends since the study that prompted our 2019 rate increase filings.

Relative to previous expectations, the new data demonstrates lower mortality for non-claimants, higher utilization of benefits, and lower than expected claim terminations, partly offset by lower claim incidence.

[REDACTED]

A. Current & Prior Assumptions

Morbidity

[REDACTED]

Incidence

[REDACTED]

After updating assumptions to reflect the generally favorable experience, the overall A/E ratio is 101%.

Incidence (Count)		
Duration	A/E Before Assumption Update	A/E After Assumption Update
10-11	93%	99%
12-14	95%	101%
15+	94%	102%
Total	94%	101%

Claim Terminations

[REDACTED]

After updating assumptions to reflect termination experience, the A/E is 99% for the first 5 months on claim and 97% overall.

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Terminations (Count)						
Benefit Period	All Months		Months 1-5		Months 6+	
	A/E Before Assumption Update	A/E After Assumption Update	A/E Before Assumption Update	A/E After Assumption Update	A/E Before Assumption Update	A/E After Assumption Update
<10 years	97%	98%	95%	99%	98%	97%
10+ years	91%	96%	91%	102%	92%	93%
Total	96%	97%	94%	99%	97%	96%

Utilization

[REDACTED]

After updating our assumption based on experience, the total A/E is 102%.

Utilization (Amount)		
Inflation Type	A/E Before Assumption Update	A/E After Assumption Update
None/GPO	101%	101%
Simple	102%	101%
Compound	112%	104%
Total	106%	102%

Voluntary Lapses

[REDACTED]

Actual to Expected ratios by amount for this block (John Hancock individual business) summarized by inflation and duration groups before and after the assumption update are shown below.

Lapse (Amount)						
Duration	No Inflation		With Inflation		Total	
	A/E Before Assumption Update	A/E After Assumption Update	A/E Before Assumption Update	A/E After Assumption Update	A/E Before Assumption Update	A/E After Assumption Update
1-5	120%	72%	91%	100%	91%	99%
6-10	104%	87%	105%	107%	105%	104%
11-15	88%	95%	96%	100%	95%	99%
16-20	125%	93%	128%	103%	128%	101%
21-25	126%	119%	127%	123%	127%	121%
26+	109%	100%	88%	92%	104%	98%
Total	107%	96%	105%	104%	105%	102%

The changes to the expected lapse assumption improved the fit across cohorts and resulted in a total A/E of 102%.

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Mortality

[REDACTED]

The below table shows the healthy life A/E ratios by amount before and after the assumption update for our Retail Individual business.

Mortality (Amount)		
Duration	A/E Before Assumption Update	A/E After Assumption Update
1-5	100%	105%
6-10	99%	99%
11-15	96%	99%
16-20	94%	102%
21-25	97%	101%
26+	76%	84%
Total	95%	100%

Expenses

[REDACTED]

CPI Inflation Rate

[REDACTED]

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B. Original Pricing Assumptions

[REDACTED]

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Addendum #2 – Demonstration of not Recouping Past Losses
Custom Care II Enhanced (LTC-03) - 2010 Rates

	Calendar Year	Original Incurred Loss Ratio	Historic Data Earned Premium	Adjusted Expected Incurred Claims	Historic Data Incurred Claims	
Original Pricing	1988	0%	-	-	-	
	1989	0%	-	-	-	
	1990	0%	-	-	-	
	1991	0%	-	-	-	
	1992	0%	-	-	-	
	1993	0%	-	-	-	
	1994	0%	-	-	-	
	1995	0%	-	-	-	
	1996	0%	-	-	-	
	1997	0%	-	-	-	
	1998	0%	-	-	-	
	1999	0%	-	-	-	
	2000	0%	-	-	-	
	2001	0%	-	-	-	
	2002	0%	-	-	-	
	2003	0%	-	2,715	-	-
	2004	0%	-	9,762	-	-
	2005	0%	-	9,762	-	-
	2006	0%	-	19,323	-	-
	2007	0%	-	29,802	-	-
	2008	0%	-	40,543	-	-
	2009	0%	-	44,630	-	-
	2010	2%	-	7,635,234	164,613	-
2011	2%	-	33,558,994	784,999	87,696	
2012	4%	-	34,969,786	1,379,167	1,012,968	
2013 RI	2013			1,472,619	761,328	
	2014			1,996,359	1,116,142	
	2015			2,593,332	1,394,793	
2016 RI	2016			3,026,971	2,257,458	
	2017			3,711,504	2,722,568	
	2018			4,601,147	4,035,328	
2019 RI	2019			6,832,656	5,123,465	
	2020			8,132,882	4,832,530	
	2021			9,530,296	9,526,685	
Values as of 12/31/2021 (discounted at maximum statutory valuation rates)						
	Past :			50,869,146	> 37,133,047	

Minimum (Accum Value of Past Incurred Claims,
Accum Value of Adjusted Expected Incurred Claims) = 37,133,047

The lesser of actual and expected past claims, \$37,133,047, is used in demonstrating compliance with the minimum loss ratio in Exhibit 1

