

John Hancock Life Insurance Company (U.S.A.)
Actuarial Memorandum for Inforce Rate Increase – Custom Care II Enhanced
January 13, 2025

<u>Product Name</u>	<u>Form Number</u>	<u>Issue Date Range</u>
Custom Care II Enhanced	LTC-03 MD 1/08	Aug 2010 - Jun 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. Requested Rate Increase

The Company is requesting an average rate increase of 35.0%, which varies by inflation option, and ranges from 23.1% to 48.7%. These rate increases reflect the unapproved amounts from our prior filing, and were determined as the amount of rate increase 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, using 2021 nationwide data.

Detail on assumptions and recent analysis is provided in **Addendum #1 - Assumptions and Analysis Performed**.

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%.

The rate stability rule is demonstrated at the bottom of **Exhibit 1**.

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.

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 78.7%, compared to the original pricing loss ratio (updated for actual CPI) of 76.9%. 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. The maximum statutory valuation discount rate is 4.0%.

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

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- 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 or post stability form requirements:

Post-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 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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3. Nationwide Loss Ratio Exhibit (Exhibit 1)

Custom Care II Enhanced (LTC-03) - 2008 Rates

Calendar Year	Original Assumptions			Historical & Projected Experience					
	Incurred Claims	Earned Premium	Incurred Loss Ratio	Before Proposed Increase			With Proposed Rate Increase		
				Incurred Claims	Earned Premium	Incurred Loss Ratio	Incurred Claims	Earned Premium	Incurred Loss Ratio
2003	-	-	0%	-	2,502	0%	-	2,502	0%
2004	-	-	0%	-	21,247	0%	-	21,247	0%
2005	-	-	0%	-	32,937	0%	-	32,937	0%
2006	-	-	0%	-	66,556	0%	-	66,556	0%
2007	-	-	0%	-	166,797	0%	-	166,797	0%
2008	25,581	4,787,244	1%	-	5,425,230	0%	-	5,425,230	0%
2009	602,166	45,935,598	1%	563,492	48,021,047	1%	563,492	48,021,047	1%
2010	2,606,036	120,058,471	2%	986,742	122,113,529	1%	986,742	122,113,529	1%
2011	5,456,484	133,116,759	4%	1,395,583	132,634,244	1%	1,395,583	132,634,244	1%
2012	8,640,030	130,110,836	7%	4,474,102	129,669,990	3%	4,474,102	129,669,990	3%
2013	12,032,056	127,480,135	9%	6,512,752	128,039,671	5%	6,512,752	128,039,671	5%
2014	15,154,310	125,029,291	12%	8,219,938	128,571,859	6%	8,219,938	128,571,859	6%
2015	17,701,969	122,478,511	14%	8,243,042	139,924,936	6%	8,243,042	139,924,936	6%
2016	20,972,199	119,815,714	18%	14,373,735	140,559,157	10%	14,373,735	140,559,157	10%
2017	25,034,842	117,004,488	21%	18,808,030	138,433,265	14%	18,808,030	138,433,265	14%
2018	29,175,182	114,059,472	26%	19,525,855	140,300,735	14%	19,525,855	140,300,735	14%
2019	33,341,396	110,962,601	30%	21,938,602	137,711,217	16%	21,938,602	137,711,217	16%
2020	37,382,193	107,698,237	35%	24,161,877	134,868,055	18%	24,161,877	134,868,055	18%
2021	41,733,277	104,267,907	40%	46,786,782	132,168,145	35%	46,786,782	132,168,145	35%
2022	45,755,745	100,701,830	45%	52,221,529	129,924,165	40%	52,221,529	129,924,165	40%
2023	51,149,201	97,045,305	53%	61,319,966	126,399,643	49%	61,319,966	126,399,643	49%
2024	57,943,892	93,251,659	62%	71,000,776	127,941,332	55%	70,184,267	125,292,947	56%
2025	64,804,672	89,299,021	73%	81,973,473	136,087,993	60%	80,088,083	142,525,010	56%
2026	73,271,703	85,178,468	86%	93,099,481	132,205,391	70%	90,958,193	171,657,454	53%
2027	83,214,530	80,899,927	103%	105,230,635	127,320,531	83%	102,810,331	167,720,488	61%
2028	92,993,063	76,487,563	122%	119,803,113	122,233,096	98%	117,047,641	160,987,549	73%
2029	101,625,337	71,967,402	141%	135,397,822	116,938,333	116%	132,283,672	153,985,124	86%
2030	108,720,322	67,358,080	161%	151,703,759	111,396,463	136%	148,214,572	146,661,247	101%
2031	117,587,731	62,677,198	188%	168,607,000	105,573,795	160%	164,729,039	138,971,979	119%
2032	127,944,600	57,949,925	221%	185,685,310	99,512,783	187%	181,414,548	130,972,586	139%
2033	136,972,075	53,223,088	257%	202,338,289	93,236,470	217%	197,684,509	122,693,508	161%
2034	142,244,741	48,551,796	293%	217,897,223	86,792,190	251%	212,885,587	114,196,464	186%
2035	141,974,974	44,014,062	323%	232,058,803	80,251,052	289%	226,721,450	105,575,621	215%
2036	144,087,313	39,668,491	363%	244,317,050	73,690,865	332%	238,697,757	96,932,542	246%
2037	149,379,992	35,540,003	420%	254,073,193	67,185,135	378%	248,229,509	88,364,232	281%
2038	152,812,582	31,643,218	483%	260,701,451	60,802,327	429%	254,705,318	79,960,359	319%
2039	151,566,254	27,995,959	541%	264,277,233	54,597,802	484%	258,198,857	71,793,650	360%
2040	143,365,230	24,613,071	582%	264,451,724	48,601,721	544%	258,369,335	63,903,518	404%
2041	137,732,719	21,505,966	640%	260,931,300	42,913,051	608%	254,929,880	56,420,156	452%
2042	135,820,555	18,672,566	727%	254,823,233	37,650,100	677%	248,962,299	49,498,267	503%
2043	132,231,916	16,105,083	821%	246,360,623	32,820,682	751%	240,694,328	43,147,574	558%
2044	125,091,828	13,801,403	906%	236,041,100	28,429,141	830%	230,612,154	37,373,425	617%
2045	113,108,335	11,753,553	962%	223,960,531	24,468,797	915%	218,809,439	32,167,011	680%
2046	103,278,598	9,947,677	1038%	210,275,972	20,922,878	1005%	205,439,625	27,505,623	747%
2047	96,899,768	8,363,482	1159%	195,775,834	17,771,184	1102%	191,272,990	23,362,893	819%
2048	89,940,705	6,983,405	1288%	180,770,102	14,997,100	1205%	176,612,390	19,716,678	896%
2049	81,308,456	5,794,726	1403%	165,389,096	12,574,792	1315%	161,585,147	16,532,876	977%
2050	70,670,865	4,779,537	1479%	149,894,197	10,477,345	1431%	146,446,630	13,776,075	1063%
2051	61,690,909	3,921,265	1573%	134,714,108	8,676,481	1553%	131,615,683	11,409,108	1154%
2052	55,076,990	3,199,789	1721%	120,046,154	7,142,351	1681%	117,285,093	9,392,701	1249%
2053	48,521,973	2,598,121	1868%	106,156,745	5,846,233	1816%	103,715,139	7,689,089	1349%
2054	41,969,091	2,102,487	1996%	93,051,832	4,759,795	1955%	90,911,640	6,261,010	1452%
2055	35,799,235	1,696,099	2111%	81,019,834	3,856,406	2101%	79,156,377	5,073,479	1560%

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 :	294,207,664	1,927,214,018	15.3%	202,037,028	2,130,313,093	9.5%	202,037,028	2,130,313,093	9.5%
Future :	1,918,382,459	959,918,575	199.8%	3,126,829,493	1,528,311,159	204.6%	3,058,160,213	1,860,532,287	164.4%
Lifetime :	2,212,590,124	2,887,132,593	76.6%	3,328,866,521	3,658,624,252	91.0%	3,260,197,241	3,990,845,380	81.7%
Lifetime Net of Hedges :	2,212,590,124	2,887,132,593	76.6%	3,208,328,776	3,658,624,252	87.7%	3,139,659,497	3,990,845,380	78.7%

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	(120,537,745)			Accum Value of Past Initial Prm x 76.6% =	1,483,403,141
Minimum (Accum Value of Past Incurred Claims,				Present Value of Future Initial Prm x 76.6% =	830,771,489
Accum Value of Adjusted Expected Incurred Claims) =	202,037,028			Accum Value of Prior Increases x 85.0% =	165,470,742
Present Value of Future Incurred Claims =	3,058,160,213			Present Value of Future Increases x 85.0% =	660,014,124
Total =	3,139,659,497	>=		Total =	3,139,659,496

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	(120,537,745)			Accum Value of Past Initial Prm x 76.6% =	1,483,403,141
Minimum (Accum Value of Past Incurred Claims,				Present Value of Future Initial Prm x 76.6% =	830,771,489
Accum Value of Adjusted Expected Incurred Claims) =	202,037,028			Accum Value of Prior Increases x 80.0% =	155,737,169
Present Value of Future Incurred Claims =	3,058,160,213			Present Value of Future Increases x 80.0% =	621,189,764
Total =	3,139,659,497	>=		Total =	3,091,101,563

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4. 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 10/01/2025.

5. History of Previous Rate Revisions

An average rate increase of 15.0% on these policy forms was accepted by your state on September 29, 2014.

An average rate increase of 2.9% on these policy forms was accepted by your state on October 23, 2015.

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

An average rate increase of 15.0% on these policy forms was accepted by your state on March 27, 2024.

6. 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 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 without CPI-linked inflation 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.

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

7. 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 1/08	502	1,761,576	3,509	4,737

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

The table below shows the Nationwide number of policies for the forms in this filing:

Form	Nationwide Policies
LTC-03 MD 1/08	49,087

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8. 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	10%	11%	25%	54%	100%
MD	6%	15%	28%	52%	100%
NW	4,946	5,257	12,134	26,750	49,087
MD	28	73	140	261	502

Benefit Period

State	1 yr	2 yr	3 yr	4 yr	5 yr	6 yr	10 yr	Lifetime	Total
NW	0%	9%	34%	22%	22%	8%	2%	4%	100%
MD	0%	8%	47%	19%	16%	5%	4%	1%	100%
NW	14	4,221	16,570	10,573	11,026	3,772	1,061	1,850	49,087
MD	0	39	238	93	82	26	18	6	502

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%	27%	30%	15%	4%	1%	0%	100%
MD	1%	3%	6%	15%	30%	28%	14%	3%	0%	0%	100%
NW	534	852	2,845	7,028	13,471	14,586	7,439	1,938	343	51	49,087
MD	6	14	30	76	149	140	70	14	2	1	502

Premium Payment Option

State	Lifetime Pay	On Claim	Limited Pay	NFO*	Limited Pay, Paid Up*	Survivorship Waiver of Premium*	Total
NW	94%	1%	1%	1%	3%	0%	100%
MD	93%	1%	1%	0%	5%	0%	100%
NW	48,240	533	314	413	1,611	57	51,168
MD	493	6	3	1	25	0	528

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

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9. 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.

10. Renewability

All policy forms are guaranteed renewable.

11. 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.

12. Trend Assumptions

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

13. Marketing Method

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

14. 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.

15. 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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16. Premium Modalization Rules

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

17. Issue Age Range

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

18. Area Factors

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

19. 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.

20. Data Credibility

Regarding the credibility of data for younger blocks of business such as Custom Care II Enhanced, 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 Enhanced 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

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would 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.

21. 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 re-filing for the remainder at a later date. In instances where the remainder remains unapproved, it has been included in the current filings.

22. 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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23. 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]

Original Pricing Assumptions

[REDACTED]

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Addendum #2 – Demonstration of not Recouping Past Losses
Custom Care II Enhanced (LTC-03) - 2008 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%	2,502	-	-
	2004	0%	21,154	-	-
	2005	0%	32,714	-	-
	2006	0%	65,979	-	-
2007	0%	164,911	-	-	
	2008	2%	5,072,468	123,026	-
	2009	2%	46,279,554	1,103,054	563,492
	2010	3%	120,099,504	3,409,462	986,742
	2011	4%	132,815,260	5,599,158	1,395,583
	2012	7%	129,763,391	8,765,501	4,474,102
2013 Assumptions	2013			7,778,284	6,512,752
	2014			10,133,909	8,219,938
	2015			12,434,715	8,243,042
2016 Assumptions	2016			14,814,882	14,373,735
	2017			18,422,541	18,808,030
	2018			22,842,769	19,525,855
2019 Assumptions	2019			32,520,819	21,938,602
	2020			38,319,947	24,161,877
	2021			44,630,132	46,786,782
Values as of 12/31/2021 (discounted at maximum statutory valuation rates)					
	Past :			257,630,017	> 202,037,028

Minimum (Accum Value of Past Incurred Claims,
Accum Value of Adjusted Expected Incurred Claims) = 202,037,028

The lesser of actual and expected past claims, \$202,037,028, is used in demonstrating compliance with the minimum loss ratio in Exhibit 1

