John Hancock Life Insurance Company (U.S.A.)
Actuarial Memorandum for Inforce Rate Increase – Advantage Policy Series
January 14, 2025

Product Name	Form Number	Issue Date Range
ProtectCare Advantage LTC	LTC-MD-91	Oct 1991 - May 1994
ProtectCare Advantage NH	NH-MD-91	Oct 1991 - Oct 1993
ProtectCare Advantage Plus LTC	LTC-94 MD	Oct 1993 - May 1998
ProtectCare Advantage Plus LTC	LTC-94-MD 9/94	Oct 1993 - May 1998
ProtectCare Advantage Plus NH	NH-94-MD	Jan 1995 - Jun 1997

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 a flat rate increase of 50.0%.

These rate increases were determined as the amounts needed to meet the target loss ratio (restated for removal of waived premiums) from our prior filing, based on nationwide experience through yearend 2021, and then projected future experience.

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**.

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 or shared cost option as part of the 2013 or 2016 rate increase filings.

In the rate schedules by policy form, **Appendices B2 forward** contain the new proposed rate tables for all policy forms included with this filing for those policyholders that *did* elect an inflation reduction or shared cost option as part of the 2013 and/or 2016 rate increase filings.

Please note that the actual rates implemented may vary slightly from those in Appendices B1 forward due to implementation rounding algorithms.

Exhibit 1 contains nationwide past premium and claims experience as well as future premium and claim projections. Waived premiums are not included. It illustrates that the anticipated lifetime loss ratio with the requested rate increase is 87.3%, well in excess of the minimum loss ratio of 60% as well as greater than the original pricing loss ratio of 67.3%. Please note that the original pricing loss ratio was not restated for the removal of waived premiums due to immateriality. The lifetime loss ratio as of 12/31/2021 is calculated as the sum of accumulated past and discounted future claims 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 5.5% for policies issued before 1993, 5.0% for policies issued from 1993 and before 1995, and 4.5% for policies issued in 1995 and after.

Exhibit 1 also contains the original expected loss ratio projections, adjusted for the actual mix of business issued, with the lifetime loss ratio also calculated as stated above.

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

<u>Post-stability form requirements:</u>
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%.

<u>Pre-stability form requirements:</u>
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%.

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

3. Nationwide Loss Ratio Exhibit (Exhibit 1)

Advantage (LTC-91, LTC-94, NH-91, NH-94)

		Original Assumptions			Historical & Projected Experience					
					Before Proposed Increase			With Proposed Rate Increase		
	Calendar Year	Incurred Claims	Earned Premium	Incurred Loss Ratio	Incurred Claims	Earned Premium	Incurred Loss Ratio	Incurred Claims	Earned Premium	Incurred Loss Ratio
	1988	-	-	0%	-	419,800	0%	-	419,800	0%
	1989	-	-	0%	-	1,456,391	0%	-	1,456,391	0%
	1990	-	-	0%	-	3,235,961	0%	-	3,235,961	0%
	1991	8,655	112,996	8%	-	6,365,645	0%	-	6,365,645	0%
	1992	690,018	8,806,570	8%	102,145	17,212,667	1%	102,145	17,212,667	1%
	1993	2,789,351	22,955,541	12%	2,118,406	30,079,967	7%	2,118,406	30,079,967	7%
	1994	6,055,651	34,864,930	17%	3,991,483	42,016,943	9%	3,991,483	42,016,943	9%
	1995	10,579,753	51,968,912	20%	8,775,273	61,546,844	14%	8,775,273	61,546,844	14%
	1996	17,375,216	82,002,617	21%	13,838,954	93,900,704	15%	13,838,954	93,900,704	15%
	1997	25,450,971	99,309,496	26%	22,223,539	104,960,798	21%	22,223,539	104,960,798	21%
	1998	31,660,190	88,848,511	36%	29,186,884	100,010,694	29%	29,186,884	100,010,694	29%
	1999	35,282,870	78,339,734	45%	30,790,430	94,627,778	33%	30,790,430	94,627,778	33%
	2000	37,142,443	69,345,863	54%	44,068,804	90,212,587	49%	44,068,804	90,212,587	49%
	2001	37,714,233	61,616,390	61%	41,635,306	86,272,527	48%	41,635,306	86,272,527	48%
	2002	37,898,630	54,926,042	69%	43,322,566	82,673,634	52%	43,322,566	82,673,634	52%
	2003	38,124,886	49,060,541	78%	57,433,966	78,925,533	73%	57,433,966	78,925,533	73%
	2004	38,367,085	43,831,315	88%	59,681,812	75,429,781	79%	59,681,812	75,429,781	79%
	2005	38,503,466	39,101,772	98%	65,848,368	71,878,758	92%	65,848,368	71,878,758	92%
Historical	2006	38,427,103	34,793,492	110%	75,204,166	68,076,208	110%	75,204,166	68,076,208	110%
Experience	2007	38,097,885	30,855,916	123%	96,221,404	64,145,475	150%	96,221,404	64,145,475	150%
	2008	37,538,952	27,259,094	138%	95,255,109	60,038,877	159%	95,255,109	60,038,877	159%
	2009	36,799,221	23,985,475	153%	85,969,096	60,745,860	142%	85,969,096	60,745,860	142%
	2010	35,925,504	21,018,615	171%	105,080,824	57,924,887	181%	105,080,824	57,924,887	181%
	2011	34,948,107	18,344,202	191%	98,127,324	52,943,292	185%	98,127,324	52,943,292	185%
	2012	33,900,617	15,943,600	213%	96,827,212	48,713,763	199%	96,827,212	48,713,763	199%
	2013	32,817,987	13,795,253	238%	93,959,071	48,068,488	195%	93,959,071	48,068,488	195%
	2014	31,690,289	11,884,168	267%	104,800,821	46,870,650	224%	104,800,821	46,870,650	224%
	2015	30,476,739	10,202,664	299%	103,271,209	44,740,022	231%	103,271,209	44,740,022	231%
	2016	29,155,292	8,725,256	334%	102,685,003	45,256,159	227%	102,685,003	45,256,159	227%
	2017	27,726,515	7,425,595	373%	99,773,975	43,603,545	229%	99,773,975	43,603,545	229%
	2018	26,210,983	6,282,905	417%	107,470,080	42,544,357	253%	107,470,080	42,544,357	253%
	2019	24,649,285	5,290,432	466%	99,756,944	42,711,546	234%	99,756,944	42,711,546	234%
	2020	23,096,673	4,448,929	519%	74,331,121	38,286,226	194%	74,331,121	38,286,226	194%
	2021	21,593,486	3,726,034	580%	88,304,853	34,555,849	256%	88,304,853	34,555,849	256%
	2022	20,115,806	3,099,908	649%	85,072,570	33,315,364	255%	85,072,570	33,315,364	255%
	2023	18,603,133	2,554,742	728%	79,443,154	30,616,694	259%	79,443,154	30,616,694	259%
	2024	17,029,270	2,090,150	815%	73,161,328	26,814,487	273%	73,106,457	28,067,964	260%
	2025	15,428,659	1,712,886	901%	67,184,618	23,170,272	290%	64,816,360	31,599,492	205%
	2026	13,856,153	1,398,214	991%	60,751,220	19,893,731	305%	57,470,654	28,223,700	204%
	2027	12,318,008	1,130,058	1090%	54,507,694	16,984,609	321%	51,564,279	24,096,461	214%
	2028	10,799,587	899,002	1201%	49,415,197	14,442,546	342%	46,746,776	20,489,978	228%
	2029	9,316,401	709,635	1313%	44,547,988	12,220,923	365%	42,142,397	17,338,108	243%
	2030	7,943,944	568,112	1398%	39,930,424	10,288,862	388%	37,774,181	14,597,049	259%
	2031	6,758,159	452,838	1492%	35,582,637	8,617,003	413%	33,661,174	12,225,144	275%
Projected	2032	5,724,693	358,046	1599%	31,501,337	7,177,959	439%	29,800,265	10,183,538	293%
Future	2033	4,793,811	281,000	1706%	27,707,859	5,946,059	466%	26,211,635	8,435,813	311%
Experience	2034	3,970,223	217,225	1828%	24,189,294	4,897,302	494%	22,883,072	6,947,916	329%
	2035	3,253,080	164,965	1972%	20,958,002	4,010,091	523%	19,826,270	5,689,209	348%
	2036	2,644,296	124,401	2126%	18,017,183	3,264,098	552%	17,044,255	4,630,852	368%
	2037	2,149,442	90,382	2378%	15,361,456	2,640,846	582%	14,531,937	3,746,629	388%
	2038	1,738,299	61,536	2825%	12,989,667	2,123,359	612%	12,288,225	3,012,460	408%
	2039	1,371,030	42,081	3258%	10,884,691	1,696,477	642%	10,296,917	2,406,832	428%
	2040	1,088,312	34,124	3189%	9,032,657	1,346,716	671%	8,544,894	1,910,617	447%
	2041	948,569	28,788	3295%	7,429,380	1,062,006	700%	7,028,194	1,506,693	466%
	2042	883,687	24,056	3673%	6,048,853	831,725	727%	5,722,215	1,179,988	485%
	2043	813,379	19,620	4146%	4,879,795	646,742	755%	4,616,286	917,548	503%
	2044	734,633	15,707	4677%	3,894,425	499,060	780%	3,684,126	708,029	520%
	2045	650,891	12,425	5238%	3,070,721	381,986	804%	2,904,902	541,933	536%
	2046	565,365	9,553	5918%	2,396,146	289,930	826%	2,266,754	411,330	551%
	2047	481,389	7,148	6734%	1,847,727	218,126	847%	1,747,949	309,460	565%
	2048	402,154	5,158	7796%	1,406,091	162,612	865%	1,330,163	230,701	577%
	2049	329,114	3,651	9014%	1,051,933	120,077	876%	995,128	170,356	584%
	2050	263,162	2,450	10743%	777,292	87,809	885%	735,318	124,577	590%
	2051	204,912	1,516	13520%	566,135	63,583	890%	535,564	90,206	594%
	2052	153,744	900	17077%	407,959	45,573	895%	385,929	64,655	597%
	2053	110,317	544	20267%	287,842	32,314	891%	272,298	45,844	594%
	2054	76,167	307	24837%	200,505	22,665	885%	189,677	32,156	590%
	2055	48,666	137	35445%	138,898	15,700	885%	131,397	22,274	590%
	2056	24,650	26	93115%	94,673	10,724	883%	89,561	15,215	589%
	2057	6,943	2	458554%	62,875	7,197	874%	59,480	10,210	583%
	2058	344	-	0%	39,735	4,739	838%	37,590	6,723	559%
	2059	15	-	0%	24,579	3,075	799%	23,251	4,362	533%
	2060	-	-	0%	15,086	1,972	765%	14,272	2,798	510%
	2061	-	-	0%	8,999	1,257	716%	8,513	1,783	478%
	2062	-	-	0%	5,352	801	668%	5,063	1,137	445%
	2063	-	-	0%	3,147	516	610%	2,977	732	407%
	2064	-	-	0%	1,906	338	564%	1,803	480	376%
	2065	-	-	0%	1,234	224	550%	1,167	318	367%
	2066	-	-	0%	769	149	514%	727	212	343%
	2067	-	-	0%	491	99	496%	464	140	331%
	2068	-	-	0%	292	64	459%	277	90	306%
	2069	-	-	0%	168	40	423%	159	56	282%
	2070	-	-	0%	93	24	389%	88	34	260%
	2071	-	-	0%	49	14	356%	46	19	238%
	2072	-	-	0%	24	7	325%	23	11	216%
	2073	-	-	0%	11	4	293%	11	5	195%
	2074	-	-	0%	5	2	262%	5	3	175%
	2075	-	-	0%	2	1	242%	2	1	161%

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 :	1,705,642,820	2,707,926,644	63.0%	3,380,212,444	4,304,721,355	78.5%	3,380,212,444	4,304,721,355	78.5%
Future :	124,729,519	13,368,294	933.0%	594,407,410	185,801,925	319.9%	575,343,082	228,034,941	252.3%
Lifetime :	1,830,372,340	2,721,294,938	67.3%	3,974,619,854	4,490,523,280	88.5%	3,955,555,526	4,532,756,296	87.3%

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

			Accum Value of Past Initial Prm x 67.3% =	2,733,968,785
Minimum (Accum Value of Past Incurred Claims,			Present Value of Future Initial Prm x 67.3% =	40,140,285
Accum Value of Adjusted Expected Incurred Claims) =	3,380,212,444		Accum Value of Prior Increases x 85.0% =	204,008,415
Present Value of Future Incurred Claims =	575,343,082		Present Value of Future Increases x 85.0% =	143,103,124
Total =	3,955,555,526	>=	Total =	3,121,220,609

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

			Accum Value of Past Initial Prm x 67.3% =	2,733,968,785
Minimum (Accum Value of Past Incurred Claims,			Present Value of Future Initial Prm x 67.3% =	40,140,285
Accum Value of Adjusted Expected Incurred Claims) =	3,380,212,444		Accum Value of Prior Increases x 80.0% =	192,007,920
Present Value of Future Incurred Claims =	575,343,082		Present Value of Future Increases x 80.0% =	134,685,293
Total =	3,955,555,526	>=	Total =	3,100,802,284

4. Proposed Effective Date

New rates will not be effective until after the completion of prior rate increases for all policyholders with product forms listed in this memo. These rates will be effective on the next policy anniversary date after completion, following at least a 90 day policyholder notification period. The assumed effective date used to calculate the rate increase is 11/01/2024.

5. History of Previous Rate Revisions

An average rate increase of 13.0% on these policy forms was accepted by your state on September 10, 2008.

An average rate increase of 13.6% on these policy forms was accepted by your state on September 13, 2012.

An average rate increase of 12.1% on these policy forms was accepted by your state on September 11, 2013.

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 14.9% on these policy forms was accepted by your state on October 23, 2015.

An average rate increase of 32.3% on these policy forms was accepted by your state on August 01, 2017 which was phased-in over 2 years with a 15% annual maximum..

An average rate increase of 19.3% on these policy forms was accepted by your state on April 01, 2020 which was phased-in over 3 years with a 15% annual maximum..

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 policyholders that have limited inflation coverage, where benefit increases cease after 20 years or at attained age 85. These options are also 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.

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-MD-91	184	729,353	3,964	5,945
NH-MD-91	6	14,001	2,333	3,499
LTC-94 MD	577	2,481,898	4,301	6,451
LTC-94-MD 9/94	(incl. above)	(incl. above)	(incl. above)	(incl. above)
NH-94-MD	8	25,314	3,164	4,745

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

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	Total
NW	57%	31%	12%	100%
MD	42%	41%	17%	100%
NW	6,987	3,846	1,418	12,251
MD	328	317	130	775

Benefit Period

State	1 yr	2 yr	3 yr	5 yr	Lifetime	Total
NW	0%	10%	29%	31%	30%	100%
MD	0%	21%	37%	25%	17%	100%
NW	1	1,186	3,583	3,837	3,644	12,251
MD	0	161	287	194	133	775

Issue Age

State	< 40	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80+	Total
NW	0%	3%	8%	18%	25%	27%	15%	3%	0%	0%	100%
MD	0%	2%	6%	16%	27%	26%	19%	4%	0%	0%	100%
NW	20	361	937	2,205	3,111	3,363	1,869	357	27	1	12,251
MD	1	15	46	121	213	199	146	32	2	0	775

Premium Payment Option

State	Lifetime Pay	On Claim	NFO*	Total
NW	76%	15%	9%	100%
MD	73%	14%	14%	100%
NW	10,172	2,079	1,162	13,413
MD	653	122	121	896

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

9. Benefit Description(s)

A brief policy description for each of the policy forms:

<u>LTC-MD-91, LTC-94 MD, LTC-94-MD 9/94</u>
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 or covered services received in a community setting.

Provides reimbursement of 100% of covered long-term care expenses incurred after an elected elimination period is met, up to the nursing home or home health maximum daily amounts. There are separate pools for nursing home/assistance living facilities and home health care. The benefit eligibility is determined based on the insured's cognitive impairment or their requiring physical assistance to perform two out of five activities of daily living (ADLs) of dressing, eating, toileting, transferring, and maintaining continence.

Premiums are waived after the insured has received 90 days of benefits and will continue to be waived until the insured stops receiving such benefits or the policy limit is reached.

<u>NH-MD-91, NH-94-MD</u>
Individually underwritten long-term care policies that provide facility-only long-term care coverage for care received in a nursing home or assisted care living facility.

Provides reimbursement of 100% of covered long-term care expenses incurred after an elected elimination period is met, up to the maximum daily amounts. The benefit eligibility is determined based on the insured's cognitive impairment or their requiring physical assistance to perform two out of five activities of daily living (ADLs) of dressing, eating, toileting, transferring, and maintaining continence.

Premiums are waived after the insured has received 90 days of benefits and will continue to be waived until the insured stops receiving such benefits or the policy limit is reached.

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.

16. Premium Modalization Rules

Frequency	Multiple of Annual Premium	Plus flat amount
Semiannual	0.5120	$0.60
Quarterly	0.2610	$0.90
Premiumatic	0.0865	$0.80

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. 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.

21. 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**.

22. 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 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

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 favorable trends overall for the Pre-Custom Care block of business since the study that prompted our 2019 rate increase filings.

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

[REDACTED]

A. <u>Current & Prior Assumptions</u>

<u>Morbidity</u>

[REDACTED]

Incidence

[REDACTED]

After updating assumptions to reflect the favorable experience, the overall A/E ratio is 93%.

Incidence (Count)		
Duration	**A/E Before Assumption Update**	**A/E After Assumption Update**
10-17	92%	93%
18-20	92%	94%
21+	89%	93%
Total	**91%**	**93%**

Claim Terminations

[REDACTED]

After the assumption update, the A/E is 102% for the first 5 months on claim and 103% overall.

Terminations (Count)						
	All Months		Months 1-5		Months 6+	
Benefit Period	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	105%	103%	96%	101%	108%	103%
10+ years	102%	104%	93%	106%	105%	103%
Total	**104%**	**103%**	**95%**	**102%**	**107%**	**103%**

Utilization

[REDACTED]

After updating our assumption based on experience, the total A/E is 100%.

Utilization (Amount)		
Inflation Type	A/E Before Assumption Update	A/E After Assumption Update
None/GPO	100%	101%
Simple	102%	100%
Compound	104%	100%
Total	**102%**	**100%**

<u>Voluntary Lapses</u>

[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)						
	No Inflation		With Inflation		Total	
Duration	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%.

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]

Original Pricing Assumptions

[REDACTED]

Addendum #2 – Demonstration of not Recouping Past Losses
Advantage (LTC-91, LTC-94, NH-91, NH-94)

	Calendar Year	Original Incurred Loss Ratio	Historic Data Earned Premium	**Adjusted Expected Incurred Claims**		Historic Data Incurred Claims
Original Pricing	1988	0%	386,537	**-**		-
	1989	0%	1,393,748	**-**		-
	1990	0%	3,120,740	**-**		-
	1991	8%	6,127,268	**469,315**		-
	1992	8%	16,441,665	**1,287,955**		102,145
	1993	12%	29,490,996	**3,552,536**		2,118,406
	1994	17%	41,411,238	**7,070,561**		3,991,483
	1995	20%	60,438,907	**12,007,607**		8,775,273
	1996	21%	92,284,969	**18,977,899**		13,838,954
	1997	25%	105,098,295	**26,102,268**		22,223,539
	1998	35%	100,365,114	**34,643,638**		29,186,884
	1999	44%	95,051,065	**41,463,989**		30,790,430
	2000	52%	90,612,154	**47,142,152**		44,068,804
	2001	60%	86,645,410	**51,628,200**		41,635,306
	2002	67%	83,061,761	**56,019,053**		43,322,566
	2003	76%	79,337,218	**60,637,647**		57,433,966
	2004	87%	75,899,454	**65,801,493**		59,681,812
	2005	98%	72,395,558	**71,203,133**		65,848,368
	2006	111%	68,614,437	**76,405,166**		75,204,166
	2007	126%	64,719,011	**81,484,551**		96,221,404
2008 Assumptions	2008			**69,427,462**		95,255,109
	2009			**67,709,923**		85,969,096
2010 Assumptions	2010			**106,796,820**		105,080,824
	2011			**105,673,345**		98,127,324
	2012			**105,665,875**		96,827,212
2013 Assumptions	2013			**100,505,345**		93,959,071
	2014			**101,725,376**		104,800,821
	2015			**98,608,766**		103,271,209
2016 Assumptions	2016			**106,012,398**		102,685,003
	2017			**103,267,852**		99,773,975
	2018			**99,889,766**		107,470,080
2019 Assumptions	2019			**104,941,218**		99,756,944
	2020			**98,513,143**		74,331,121
	2021			**93,091,559**		88,304,853
Values as of 12/31/2021 (discounted at maximum statutory valuation rates)						
Past :				**3,558,964,463**	>	3,380,212,444

Minimum (Accum Value of Past Incurred Claims,
Accum Value of Adjusted Expected Incurred Claims) = 3,380,212,444

The lesser of actual and expected past claims, $3,380,212,444, is used in demonstrating compliance with the minimum loss ratio in Exhibit 1