John Hancock Life Insurance Company (U.S.A.)
Actuarial Memorandum for Inforce Rate Increase – Custom Care II 2007
April 26, 2023

Product Name	Form Number	Issue Date Range
Custom Care II (2007)	LTC-03 MD (2007)	Nov 2007 - Jan 2010

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

3. Requested Rate Increase

The Company is requesting an average rate increase of 82.9%, which varies by issue age, benefit period, and inflation option, and ranges from 76.1% to 83.9%. 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 (51.9%) that would be needed in order to revert to the applicable lifetime loss ratio certified to in our prior filing for this form restated for the removal of waived premiums (86.3%).
2. Rate increases were adjusted to account for the timing of approvals on prior filings and delayed implementation due to a multi-year phase-in of the prior rate increase in your State. Adjustments are proportional to the amounts requested in prior filings and were determined such that the achieved lifetime loss ratio matches that targeted in Step #1 above. After the application of this adjustment, the average rate increase for the forms listed in this memo is 52.6%, ranging from 52.5% to 52.6%.
3. Unapproved rate increases initially requested in our 2016 inforce rate filings (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 2016 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 82.9%, ranging from 76.1% to 83.9%.

4. We ensured that the resulting overall increase in rates satisfied 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 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.
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.

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. Waived premiums are not included. It illustrates that the anticipated lifetime loss ratio with the requested rate increase is 86.3%, which exceeds the original pricing loss ratio of 85.6%. 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.

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%.

4. Nationwide Loss Ratio Exhibit (Exhibit 1)

Custom Care II (LTC-03) - 2007 Rates

		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
	1999	-	-	0%	-	266	0%	-	266	0%
	2000	-	-	0%	-	3,188	0%	-	3,188	0%
	2001	-	-	0%	-	3,188	0%	-	3,188	0%
	2002	-	-	0%	-	4,726	0%	-	4,726	0%
	2003	-	-	0%	-	9,205	0%	-	9,205	0%
	2004	-	-	0%	-	9,205	0%	-	9,205	0%
	2005	-	-	0%	-	12,350	0%	-	12,350	0%
Historical	2006	-	-	0%	-	37,190	0%	-	37,190	0%
Experience	2007	6,679	2,486,464	0%	-	2,794,415	0%	-	2,794,415	0%
	2008	619,926	31,902,852	2%	129,183	33,125,319	0%	129,183	33,125,319	0%
	2009	1,670,547	44,056,424	4%	1,761,485	43,654,529	4%	1,761,485	43,654,529	4%
	2010	2,980,461	46,809,552	6%	1,253,047	45,926,108	3%	1,253,047	45,926,108	3%
	2011	4,309,478	45,991,098	9%	1,497,630	44,817,133	3%	1,497,630	44,817,133	3%
	2012	5,644,779	45,076,302	13%	4,174,912	42,163,772	10%	4,174,912	42,163,772	10%
	2013	6,520,605	44,189,314	15%	5,711,406	44,876,019	13%	5,711,406	44,876,019	13%
	2014	7,377,388	43,268,149	17%	6,624,194	45,428,529	15%	6,624,194	45,428,529	15%
	2015	8,505,081	42,293,181	20%	7,014,284	44,469,377	16%	7,014,284	44,469,377	16%
	2016	9,833,871	41,267,096	24%	7,416,100	43,511,202	17%	7,416,100	43,511,202	17%
	2017	11,352,801	40,183,290	28%	9,224,331	43,299,441	21%	9,224,331	43,299,441	21%
	2018	12,654,427	39,049,415	32%	12,536,731	44,924,848	28%	12,536,731	44,924,848	28%
	2019	14,184,483	37,863,129	37%	14,376,013	45,316,977	32%	14,376,013	45,316,977	32%
	2020	16,198,348	36,627,550	44%	16,013,136	43,818,231	37%	16,013,136	43,818,231	37%
	2021	18,549,530	35,342,629	52%	17,758,907	41,427,412	43%	17,758,907	41,427,412	43%
Projected	2022	21,132,580	34,010,787	62%	24,414,657	40,458,401	60%	24,414,657	40,458,401	60%
Future	2023	23,772,141	32,630,441	73%	28,315,683	39,079,519	72%	28,315,683	39,079,519	72%
Experience	2024	26,799,581	31,198,657	86%	32,386,956	37,727,237	86%	32,063,086	64,710,301	50%
	2025	30,316,764	29,715,689	102%	36,866,088	36,317,711	102%	36,128,766	65,131,423	55%
	2026	33,908,323	28,183,925	120%	41,324,409	34,845,856	119%	40,497,921	62,503,933	65%
	2027	37,386,731	26,617,538	140%	46,218,173	33,333,161	139%	45,293,809	59,801,710	76%
	2028	40,955,321	25,020,801	164%	51,919,288	31,773,650	163%	50,880,902	57,014,062	89%
	2029	44,663,363	23,387,699	191%	57,875,436	30,142,231	192%	56,717,927	54,095,947	105%
	2030	48,384,106	21,719,793	223%	63,962,830	28,446,638	225%	62,683,573	51,061,273	123%
	2031	51,581,752	20,024,698	258%	70,033,375	26,691,894	262%	68,632,708	47,919,084	143%
	2032	54,133,187	18,327,260	295%	75,852,836	24,886,112	305%	74,335,780	44,683,912	166%
	2033	56,040,308	16,661,761	336%	81,175,435	23,050,419	352%	79,551,927	41,393,739	192%
	2034	57,616,854	15,053,222	383%	85,719,351	21,203,191	404%	84,004,964	38,081,525	221%
	2035	58,922,233	13,514,414	436%	89,657,196	19,368,966	463%	87,864,053	34,791,427	253%
	2036	59,418,271	12,053,831	493%	92,736,707	17,561,697	528%	90,881,973	31,548,592	288%
	2037	59,087,972	10,685,153	553%	94,558,066	15,804,359	598%	92,666,905	28,394,484	326%
	2038	58,267,530	9,415,346	619%	95,078,826	14,105,701	674%	93,177,249	25,344,941	368%
	2039	57,036,665	8,246,543	692%	94,283,717	12,480,761	755%	92,398,043	22,427,094	412%
	2040	55,386,464	7,178,317	772%	92,560,214	10,963,640	844%	90,709,009	19,702,301	460%
	2041	52,959,632	6,209,270	853%	90,033,523	9,568,529	941%	88,232,852	17,196,160	513%
	2042	49,951,246	5,342,512	935%	86,656,113	8,297,146	1044%	84,922,991	14,911,943	569%
	2043	46,774,827	4,574,729	1022%	82,526,367	7,149,495	1154%	80,875,840	12,849,703	629%
	2044	43,549,469	3,899,299	1117%	77,832,464	6,121,312	1271%	76,275,815	11,001,909	693%
	2045	40,351,618	3,308,641	1220%	72,703,664	5,206,795	1396%	71,249,591	9,358,272	761%
	2046	36,939,328	2,795,122	1322%	67,278,400	4,400,411	1529%	65,932,832	7,908,859	834%
	2047	33,427,347	2,354,274	1420%	61,819,605	3,695,239	1673%	60,583,213	6,641,279	912%
	2048	30,142,214	1,978,354	1524%	56,237,149	3,083,261	1824%	55,112,406	5,541,157	995%
	2049	27,184,450	1,659,267	1638%	50,637,338	2,556,629	1981%	49,624,591	4,594,417	1080%
	2050	24,537,875	1,389,464	1766%	45,116,309	2,107,461	2141%	44,213,983	3,786,908	1168%
	2051	21,968,525	1,162,077	1890%	39,912,271	1,727,776	2310%	39,114,026	3,104,300	1260%

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)

	Incurred Claims	Earned Premium	Incurred Loss Ratio	Incurred Claims	Earned Premium	Incurred Loss Ratio	Incurred Claims	Earned Premium	Incurred Loss Ratio
Past :	145,150,267	773,742,752	18.8%	124,834,065	810,435,217	15.4%	124,834,065	810,435,217	15.4%
Future :	782,541,160	310,282,495	252.2%	1,164,019,290	401,356,082	290.0%	1,142,045,293	656,901,812	173.9%
Lifetime :	927,691,427	1,084,025,247	85.6%	1,288,853,355	1,211,791,299	106.4%	1,266,879,359	1,467,337,029	86.3%

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 85.6% =	625,020,311
Minimum (Accum Value of Past Incurred Claims,			Present Value of Future Initial Prm x 85.6% =	253,695,544
Accum Value of Adjusted Expected Incurred Claims) =	124,834,065		Accum Value of Prior Increases x 85.6% =	68,537,155
Present Value of Future Incurred Claims =	1,142,045,293		Present Value of Future Increases x 85.6% =	308,470,495
Total =	1,266,879,359	>=	Total =	1,255,723,504

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 85.6% =	625,020,311
Minimum (Accum Value of Past Incurred Claims,			Present Value of Future Initial Prm x 85.6% =	253,695,544
Accum Value of Adjusted Expected Incurred Claims) =	124,834,065		Accum Value of Prior Increases x 85.6% =	68,537,155
Present Value of Future Incurred Claims =	1,142,045,293		Present Value of Future Increases x 85.6% =	308,470,495
Total =	1,266,879,359	>=	Total =	1,255,723,504

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 14.4% rate increase on these policy forms was accepted by your state on September 13, 2012.

A 0.9% rate increase on these policy forms was accepted by your state on September 11, 2013.

A multi-year rate increase phase-in of 7.5% annually for two years on these policy forms was accepted by your state on April 13, 2018.

7. Reduced Benefit Options (RBOs)

Although this is a closed block of business, we are filing the following option which will provide policyholders an alternative to the rate increase:

- ***LTC Buy-Out Offer and Policy Termination Option***
  We will be making an offer to buy-out policies which are active and paying premium. Policyholders who accept this offer will agree to receive a one-time, lump sum payment in exchange for the immediate termination of their policy and any riders.

  The LTC Buy-Out Offer Amount will be based on the best estimate value of the policy, determined by an actuarial calculation which takes into account several factors including morbidity, mortality, and interest rate assumptions. This offer will be available to policies issued prior to age 70. Additional details have been provided in **Addendum #3 – LTC Buy-Out Offer and Policy Termination Option Details**.

If the full or substantial portion of the rate increase request is approved and per the state's agreement, we will file the following options which would provide policyholders the option to offset 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 combination. All Shared Cost percentages are determined to be actuarially equivalent to the requested rate increases by combination of 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***
  In addition to the actuarially equivalent options to offset the rate increase, if the full or substantial portion of the rate increase request is approved and per the state's agreement, we will also be offering a voluntary 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.

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 (2007)	1,022	3,368,701	3,300	6,035

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

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	5%/3% Compound	Total
NW	16%	27%	50%	7%	100%
MD	12%	28%	60%	0%	100%
NW	2,322	3,936	7,475	1,072	14,805
MD	118	291	613	0	1,022

Benefit Period

State	1 yr	2 yr	3 yr	4 yr	5 yr	6 yr	10 yr	Lifetime	Total
NW	0%	9%	29%	24%	22%	7%	3%	6%	100%
MD	0%	9%	34%	23%	20%	7%	3%	4%	100%
NW	2	1,344	4,309	3,505	3,245	1,075	488	837	14,805
MD	0	93	352	233	201	74	31	38	1,022

Issue Age

State	< 40	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80+	Total
NW	1%	1%	5%	14%	26%	31%	16%	4%	1%	0%	100%
MD	1%	3%	4%	16%	26%	30%	15%	4%	1%	0%	100%
NW	161	218	743	2,038	3,891	4,600	2,378	621	139	16	14,805
MD	9	26	44	168	262	306	152	43	9	3	1,022

Premium Payment Option

State	Lifetime Pay	On Claim	Limited Pay	NFO*	Limited Pay, Paid Up*	Survivorship Waiver of Premium*	Total
NW	93%	2%	0%	2%	3%	0%	100%
MD	93%	2%	1%	0%	4%	0%	100%
NW	14,489	259	57	289	532	16	15,642
MD	995	19	8	2	42	3	1,069

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

10. Benefit Description(s)

A brief policy description for each of the policy forms:

<u>LTC-03 MD (2007)</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, 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.

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 2007, 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 2007 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 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**.

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

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.

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	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)						
	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%**

<u>Expenses</u>

[REDACTED]

B. <u>Original Pricing Assumptions</u>

[REDACTED]

Addendum #2 – Demonstration of not Recouping Past Losses
Custom Care II (LTC-03) - 2007 Rates

	Calendar Year	Original Incurred Loss Ratio	Historic Data Earned Premium	**Adjusted Expected Incurred Claims**		Historic Data Incurred Claims
	1988	0%	-	**-**		-
	1989	0%	-	**-**		-
	1990	0%	-	**-**		-
	1991	0%	-	**-**		-
	1992	0%	-	**-**		-
	1993	0%	-	**-**		-
	1994	0%	-	**-**		-
	1995	0%	-	**-**		-
	1996	0%	-	**-**		-
	1997	0%	-	**-**		-
Original Pricing	1998	0%	-	**-**		-
	1999	0%	87	**-**		-
	2000	0%	3,188	**-**		-
	2001	0%	3,188	**-**		-
	2002	0%	4,678	**-**		-
	2003	0%	9,205	**-**		-
	2004	0%	9,205	**-**		-
	2005	0%	12,350	**-**		-
	2006	0%	36,547	**-**		-
	2007	0%	2,573,977	**6,914**		-
	2008	2%	31,908,761	**620,041**		129,183
	2009	4%	43,433,915	**1,646,943**		1,761,485
	2010			**1,764,888**		1,253,047
	2011			**2,419,369**		1,497,630
2010 RI	2012			**3,101,084**		4,174,912
	2013			**4,027,924**		5,711,406
	2014			**5,148,674**		6,624,194
	2015			**6,438,561**		7,014,284
	2016			**7,938,812**		7,416,100
2016 RI	2017			**9,786,607**		9,224,331
	2018			**11,761,196**		12,536,731
	2019			**16,216,969**		14,376,013
2019 RI	2020			**18,690,607**		16,013,136
	2021			**21,767,941**		17,758,907
Values as of 12/31/2021 (discounted at maximum statutory valuation rates)						
Past :				**130,444,923**	>	124,834,065

Minimum (Accum Value of Past Incurred Claims,
Accum Value of Adjusted Expected Incurred Claims) = 124,834,065

The lesser of actual and expected past claims, $124,834,065, is used in demonstrating compliance with the minimum loss ratio in Exhibit 1

Addendum #3 - LTC Buy-Out Offer and Policy Termination Option Details

With this filing a separate disclosure endorsement has been submitted requesting your state to approve an additional rate increase alternative option for policyholders. This new option is an offer for John Hancock to buy-out an insured's policy by providing a one-time lump-sum payment in exchange for the immediate termination of the policy and any riders. Upon election of this option the insured's policy will be terminated and the insured will no longer be eligible for any long-term care benefits from John Hancock. The insured will have a 30-day period to change their mind, after which the policy will not be eligible for restoration.

Long Term Care insurance does not provide a cash surrender value and this offer should not be considered as one. It will be made on a one-time basis as part of the rate increase request documented in this actuarial memorandum. We do not anticipate making this LTC Buy-Out Offer and Policy Termination Option available again to these insureds should additional rate action be required at a later time. The intention with this offer is to provide a one-time alternative to insureds who no longer wish to retain their policy. We anticipate that policyholders who expect to use their benefits in the future will not accept this offer.

The LTC Buy-Out Offer Amount to be identified in the disclosure endorsement is scaled to our expectation of a policy's remaining risk and will be based on the best estimate value of the policy, determined by an actuarial calculation which takes into account several factors including morbidity, mortality, and interest rate assumptions. This offer will be available on policies issued prior to age 70, which are active, premium-paying policies with an approved rate increase.

The actuarial calculation that will determine the LTC Buy-Out Offer Amount for each insured will be a Buy-out Factor (50%) multiplied by the best estimate actuarial present value of expected future benefits payable under their policy. The actuarial present value of expected future benefits represents the value of the remaining risk in the policy from John Hancock's perspective. While the LTC Buy-Out Offer Amounts will be calculated on a policy-by-policy basis, both the Buy-out Factor and the methodology for calculating the expected future benefits will be consistent for all insureds issued in your state who receive a buy-out offer under the policy forms included in this actuarial memorandum. The expected benefits will be consistent with those used to calculate the Gross Premium Valuation (GPV) reserve, discounted at 5.75% annually. LTC Buy-Out Offer Amounts will be calculated as of September 30, 2022[1].

Since LTC Buy-Out Offer Amounts are based on expected future benefits, they will vary by both policy and policyholder attributes, including but not limited to: product features and riders, benefit amounts, inflation type, policy duration, age at policy issue, sex, and risk class. Depending on the risk characteristics of the policy, the resulting LTC Buy-Out Offer Amount may be higher or lower than the total premiums that the insured has paid into their policy. Below are two sample policies which demonstrate how the LTC Buy-Out Offer Amount is calculated from the components of the GPV reserve as well as how the value of it can vary from one insured to another. These are not actual policies but are provided for illustrative purposes only.

Sample Policy #	Cumulative Premium	GPV Reserve =	PV Future Benefits (PVFB)	+ PV Future Expenses	- PV Future Premiums		Buy-out Factor	LTC Buy-Out Offer Amount (Buy-out Factor x PVFB)
1	10,000	17,000	18,000	2,000	3,000		50%	9,000
2	10,000	11,000	12,000	2,000	3,000		50%	6,000

[1] For policyholders who are on claim as of or have claims paid after September 30, 2022 and later come off claim for long enough to receive the rate increase requested in this filing, they will receive a LTC Buy-Out Offer and Policy Termination Option at the time of their rate increase reflecting a valuation date after their return to active status.

Appendix A
Custom Care II (LTC-03) - 2007 Rates
Rate Increase Percentages

(applied across all elimination periods, and across all Assisted Living Facilities, Home and Community Care percentages)

Age	Base							Simple Inflation							Compound Inflation						
	Benefit Period							Benefit Period							Benefit Period						
	2 Years	3 Years	4 Years	5 Years	6 Years	10 Years	Life	2 Years	3 Years	4 Years	5 Years	6 Years	10 Years	Life	2 Years	3 Years	4 Years	5 Years	6 Years	10 Years	Life
18-29	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%
30	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%
31	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%
32	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%
33	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%
34	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%
35	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%
36	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%
37	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%
38	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%
39	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%
40	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	83.7%	76.1%	82.2%	76.1%	76.1%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%
41	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	83.9%	76.1%	76.1%	76.1%	76.1%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%
42	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	83.9%	83.9%	83.6%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%
43	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%
44	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	83.9%	83.5%	83.9%	83.6%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%
45	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%
46	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.8%	83.9%	83.9%
47	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.8%	83.9%	83.9%
48	76.1%	82.1%	76.1%	76.1%	76.1%	76.1%	76.1%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.8%	83.9%	83.9%
49	76.1%	76.1%	76.1%	76.1%	76.1%	82.2%	76.1%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.8%	83.9%	83.9%
50	76.1%	79.2%	76.1%	76.1%	76.1%	76.1%	76.1%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%
51	76.1%	76.1%	76.1%	76.1%	76.1%	83.9%	76.1%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%
52	76.1%	76.1%	76.1%	76.1%	76.1%	83.9%	76.1%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%
53	76.1%	76.1%	76.1%	76.1%	76.1%	83.9%	83.3%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%
54	76.1%	76.1%	76.1%	76.1%	76.1%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%
55	83.9%	76.1%	76.1%	76.1%	76.1%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%
56	79.2%	76.1%	76.1%	76.1%	76.1%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%
57	76.1%	76.1%	76.1%	76.1%	76.1%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%
58	76.1%	76.1%	76.1%	76.1%	76.1%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%
59	76.1%	76.1%	76.1%	76.1%	76.1%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.6%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%
60	76.1%	76.1%	76.1%	76.1%	76.1%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	76.1%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%
61	76.1%	76.1%	76.1%	76.1%	76.1%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.7%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%
62	76.1%	76.1%	76.1%	76.1%	76.1%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	76.1%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%
63	76.1%	76.1%	76.1%	76.1%	76.1%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%
64	76.1%	76.1%	76.1%	76.1%	76.1%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%
65	76.1%	76.1%	76.1%	76.1%	76.1%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%
66	76.1%	76.1%	76.1%	76.1%	76.1%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%
67	76.1%	76.1%	76.1%	76.1%	76.1%	83.9%	76.1%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%
68	76.1%	76.1%	76.1%	76.1%	76.1%	83.8%	76.1%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%
69	76.1%	76.1%	76.1%	76.1%	76.1%	83.9%	76.1%	83.9%	83.9%	83.9%	83.9%	83.5%	83.9%	83.9%	83.9%	83.9%	83.9%	83.9%	83.6%	83.9%	83.9%
70	76.1%	76.1%	76.1%	76.1%	76.1%	83.9%	76.1%	83.9%	83.9%	83.9%	76.1%	76.1%	83.9%	83.9%	83.9%	83.6%	83.9%	76.1%	76.1%	83.9%	83.9%
71	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	83.9%	83.9%	83.4%	83.3%	76.1%	83.9%	83.9%	83.9%	83.8%	83.8%	76.1%	76.1%	83.9%	83.9%
72	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	83.9%	83.7%	83.9%	76.1%	76.1%	83.9%	83.9%	83.9%	83.9%	83.5%	76.1%	76.1%	83.9%	83.9%
73	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	83.7%	83.9%	83.9%	83.3%	83.3%	83.9%	83.9%	83.9%	83.9%	83.6%	76.1%	76.1%	83.9%	83.9%
74	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	83.9%	83.9%	83.9%	83.4%	76.1%	83.9%	83.9%	83.9%	83.9%	76.1%	76.1%	76.1%	83.9%	83.9%
75	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	83.9%	83.5%	83.9%	83.6%	76.1%	83.9%	83.9%	83.9%	83.9%	76.1%	76.1%	76.1%	83.9%	83.9%
76	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	83.9%	83.6%	83.9%	83.3%	76.1%	83.9%	83.9%	83.9%	83.9%	76.1%	76.1%	76.1%	83.9%	83.9%
77	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	83.9%	83.4%	83.9%	76.1%	76.1%	83.9%	83.9%	83.9%	83.9%	76.1%	76.1%	76.1%	83.9%	83.9%
78	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	83.9%	83.4%	83.9%	76.1%	76.1%	83.9%	83.9%	83.9%	83.9%	76.1%	76.1%	76.1%	83.9%	83.9%
79	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	83.9%	76.1%	83.8%	76.1%	76.1%	83.9%	83.9%	83.9%	83.9%	83.3%	76.1%	83.3%	83.9%	83.9%
80	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	83.9%	76.1%	83.8%	76.1%	76.1%	83.9%	76.1%	83.9%	83.9%	76.1%	76.1%	83.4%	83.9%	76.1%
81	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	83.9%	83.5%	83.6%	76.1%	76.1%	83.9%	76.1%	83.9%	83.9%	76.1%	76.1%	83.5%	83.9%	76.1%
82	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	83.9%	83.4%	83.8%	76.1%	76.1%	83.9%	76.1%	83.9%	83.9%	76.1%	83.6%	83.4%	83.9%	76.1%
83	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	83.9%	83.4%	83.9%	76.1%	76.1%	83.9%	76.1%	83.9%	83.9%	76.1%	83.4%	83.7%	83.9%	76.1%
84	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	83.9%	83.4%	83.9%	76.1%	76.1%	83.9%	76.1%	83.9%	83.9%	76.1%	83.6%	83.6%	83.9%	76.1%
85	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	0.0%	76.1%	76.1%	76.1%	76.1%	0.0%	76.1%	0.0%	76.1%	76.1%	76.1%	76.1%	0.0%
86	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	0.0%	76.1%	76.1%	76.1%	76.1%	0.0%	76.1%	0.0%	76.1%	76.1%	76.1%	76.1%	0.0%
87	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	0.0%	76.1%	76.1%	76.1%	76.1%	0.0%	76.1%	0.0%	76.1%	76.1%	76.1%	76.1%	0.0%
88	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	0.0%	76.1%	76.1%	76.1%	76.1%	0.0%	76.1%	0.0%	76.1%	76.1%	76.1%	76.1%	0.0%
89	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	0.0%	76.1%	76.1%	76.1%	76.1%	0.0%	76.1%	0.0%	76.1%	76.1%	76.1%	76.1%	0.0%
90	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	76.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
91	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%