June 13, 2018

## Re: LTC2-FAC-MD, LTC2-VAL-MD, LTC2-IDEAL-MD, LTC2-PREM-MD Issued by Metropolitan Life Insurance Company (MetLife)

Attached is the filing for the captioned forms. This letter provides an overview of the filing and notes on some of the content. After a careful review of earlier filings, we have endeavored to reflect in this filing additional content based on all the questions submitted by your Department. Hopefully, this will make your review easier and more effective.

## Filing Overview

In addition to this overview, this filing consists of the Actuarial Memorandum, the Addendum Automatic Inflation Choices "Landing Spots" focusing on premium rates for various levels of inflation protection for use as Landing Spots consequent to rate action, and supporting data based on earlier reviews. These documents are outlined and summarized here for your convenience.

| Title | Description |
| :---: | :---: |
| Actuarial Memorandum Exhibit I-A | Lifetime Loss Ratio ("LLR") <br> - Without/with proposed rate increase of 32.25\% (actuarially equivalent to two 15\% increases) <br> - Nationwide experience <br> - Weighted average statutory rate $4.02 \%$ <br> LLR without rate increase - 110.1\% <br> LLR with rate increase - 95.1\% |
| Exhibit II-A | Demonstration of rate action meeting Rate Stability (58/85) limitations |
| Exhibit I-B | Lifetime Loss Ratio ("LLR") <br> - Without/with proposed rate increase of $32.25 \%$ (equivalent to two $15 \%$ increases) <br> - Maryland experience <br> - Weighted average statutory rate $4.02 \%$ <br> LLR without rate increase $-112.6 \%$ <br> LLR with rate increase - 97.3\% |
| Exhibit II-B | Demonstration of rate action meeting Rate Stability (58/85) limitations |
| Review of Prior Correspondence Attachment 1 | Comparison of Original Pricing and Current Best Estimate Assumptions |
| Attachment 2 | Nationwide Actual-to-Expected Loss Ratios by Duration <br> LLR without rate increase - 110.1\%; A/E - 1.84 |
| Attachment 3 | Nationwide Actual-to-Expected Loss Ratios by Calendar Year <br> LLR without rate increase - 110.6\%; A/E - 1.84 |


| Attachment 4 | Actual-to-Expected results for Lapse, Mortality and <br> Morbidity assumptions |
| :--- | :--- |
| Addendum - Actuarial Memorandum <br> Addendum | Memorandum on Premium Rates for use as <br> "Landing Spots" with Rate Increases |

## Additional Notes

MetLife requests the rate action based on deviations from anticipated experience outlined in the Actuarial Memorandum, the Addendum, and the supporting attachments. Lifetime Loss Ratios exceed all minimum requirements in Maryland as well as the application of rate stability standards even at the full requested rate action. In addition, though Maryland-only experience is not necessarily credible, the Maryland LLR's still meet the standards above at the full rate action level.

COMAR 31.14.01.04A(5) states, "An insurer may not charge a renewal premium rate for a longterm care policy which exceeds by more than 15 percent any premium charged for the policy during the preceding 12 months." This filing limits the requested rate increase to $15 \%$.

Despite the rate action requested, the experience of the block does not fully return to pricing levels. In general, the rate action restricts consideration of recovering historical losses by focusing on future lifetime experience. We will continue, of course, to analyze and adjust experience assumptions and reserve the right to update those in the future along with requesting any resulting changes in premium rates.

Thank you for your consideration. I look forward to hearing from you.

## ManR Dlenton

Mark D. Newton, FSA, MAAA

Actuarial Director, Metropolitan Life Insurance Company

# METROPOLITAN LIFE INSURANCE COMPANY 

New York, NY<br>Actuarial Memorandum for VIP2 Series

June 13, 2018

## Policy Forms

The premium rate schedule increase for which we are seeking approval will apply to the following individual long-term care policy forms:

- LTC2-FAC-MD
- LTC2-VAL-MD
- LTC2-IDEAL-MD
- LTC2-PREM-MD

These forms were developed as part of a nationwide series and were issued in Maryland from March 2005 to July 2009, but are no longer being marketed in any state. Nationwide, the last policies under this series were issued in 2010.

Policy forms LTC2-FAC-MD, LTC2-VAL-MD, LTC2-IDEAL-MD, and LTC2-PREM-MD (subsequently referred to as LTC2-FAC, LTC2-VAL, LTC2-IDEAL, and LTC2-PREM, respectively) are existing individual tax-qualified policy forms and were previously approved in 2005, along with any rider or endorsement forms that were contemporaneously or subsequently approved for use with these policy forms. Note, however, that the increase will only apply to those policies issued to policyholders in your state in connection with policy applications dated on or before January 15, 2009, because policies issued in connection with later applications were subject to a revised premium rate schedule.

Policy form LTC2-FAC provides coverage for long-term care services received in a nursing home, assisted living facility (ALF), or hospice facility. Policy forms LTC2-VAL, LTC2IDEAL and LTC2-PREM provide comprehensive long-term care coverage.

## 1. Purpose of Filing

This actuarial memorandum has been prepared for the purpose of demonstrating that the anticipated loss ratio standard of this product meets the minimum requirements of your state and may not be suitable for other purposes.

## 2. Description of Benefits

LTC2-FAC is part of a nationwide series of individually underwritten policy forms which reimburses $100 \%$ of charges, up to a maximum facility benefit amount, for confinement in a licensed nursing home or assisted living facility. Benefits are payable under skilled, intermediate, or custodial levels of care, as well as inpatient hospice care.

The daily benefit amount and the maximum benefit period are selected at issue. Additional benefits for needs assessment expenses and transition expenses are also provided. In addition, LTC2-FAC provides benefits for international coverage, caregiver training, and alternate services.

# METROPOLITAN LIFE INSURANCE COMPANY 

New York, NY

## Actuarial Memorandum for VIP2 Series

June 13, 2018
LTC2-VAL is part of a nationwide series of individually underwritten policy forms which reimburses $100 \%$ of charges, up to a maximum facility benefit amount, for confinement in a licensed nursing home. Benefits are payable under skilled, intermediate, or custodial levels of care, as well as inpatient hospice care.

LTC2-VAL also includes an assisted living/home care/community-based care benefit which reimburses $100 \%$ of charges from formal caregivers, up to a maximum assisted living/home/community-based care benefit amount, for services received at home or assisted living facility or at an adult day care center for maintenance or personal care, including hospice care.

The daily benefit amount, assisted living/home care/adult day care percentage, and maximum benefit period are selected at issue. Additional benefits for needs assessment expenses are also provided. In addition, LTC2-VAL provides benefits for respite care, international coverage, caregiver training, and alternate services.

LTC2-IDEAL is part of a nationwide series of individually underwritten policy forms which reimburses $100 \%$ of charges, up to a maximum facility benefit amount, for confinement in a licensed nursing home or assisted living facility. Benefits are payable under skilled, intermediate, or custodial levels of care, as well as inpatient hospice care.

LTC2-IDEAL also includes a home care/community-based care benefit which reimburses $100 \%$ of charges from formal caregivers, up to a maximum home care/community-based care benefit amount, for services received at home or at an adult day care center for maintenance or personal care, including hospice care.

The daily benefit amount, home care/adult day care percentage, and maximum benefit period are selected at issue. Additional benefits for needs assessment expenses and transition expenses are also provided. In addition, LTC2-IDEAL provides benefits for respite care, international coverage, caregiver training, alternate services, and supportive services/specialized transportation.

LTC2-PREM is part of a nationwide series of individually underwritten policy forms which reimburses a maximum facility benefit amount, for confinement in a licensed nursing home. Benefits are payable under skilled, intermediate, or custodial levels of care, as well as inpatient hospice care.

LTC2-PREM also includes a home/community-based care benefit which reimburses a maximum home/community-based care benefit amount, for services received at home or assisted living facility or at an adult day care center for maintenance or personal care, including hospice care.

The daily benefit amount, home care/adult day care percentage, and maximum benefit period are selected at issue. Additional benefits for needs assessment expenses and international coverage are also provided.

# METROPOLITAN LIFE INSURANCE COMPANY 

New York, NY

## Actuarial Memorandum for VIP2 Series

June 13, 2018
LTC2-FAC, LTC2-VAL, LTC2-IDEAL, and LTC2-PREM
For all these policies, benefit eligibility is based on the inability to perform at least two of six activities of daily living (ADLs) including bathing, continence, dressing, eating, toileting, and transferring, for a period of at least 90 days due to loss of functional capacity; or due to severe cognitive impairment.

Benefit payments commence after a specified number of days in a waiting period, selected at issue, which accumulate over the lifetime of the policy. The waiting period need not be satisfied before receiving coverage for hospice care (except LTC2-PREM) or (if covered under the policy form) respite care, needs assessment or caregiver training; however, receipt of these services does not count towards satisfying the waiting period. Waiver of premium is provided beginning on the first day of the policy month coincident with or following the day the insured becomes eligible for benefit payments (includes completion of the waiting period).

At issue, the insured had the option of choosing one of the following benefit increase riders: $5 \%$ Compound, 5\% Simple, or Future Purchase (in some states, a 3\% Compound Inflation Rider was also available).

At issue, the insured had the option of selecting the following riders: Nonforfeiture Coverage Rider, Return of Premium Rider, Restoration of Benefits Rider, Shared Care Rider, Home Care Elimination Period Waiver Rider (except LTC2-PREM), Indemnity Rider (LTC2-VAL only), Calendar Day Elimination Period Rider (except LTC2-FAC and LTC2-PREM), Ten Year Premium Payment Rider, (except LTC2-FAC and LTC2-PREM), Paid-up Rider, Double Pay First Year Rider or Reduced Pay at 65 Rider. A Contingent Benefits Upon Lapse Rider is attached to all policies, except those that select the Nonforfeiture Coverage Rider, for no additional premium.

## 3. Renewability

These policy forms are guaranteed renewable for life.

## 4. 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. Note, however, that the increase will only apply to those policies issued to policyholders in your state in connection with policy applications dated on or before January 15, 2009, because policies issued in connection with later applications were subject to a revised premium rate schedule.

## 5. Actuarial Assumptions

a. Expected Claim Costs are the product of attained age frequency rates and continuance curves, adjusted by utilization factors and underwriting selection factors based on actual experience through June 30, 2016.

# METROPOLITAN LIFE INSURANCE COMPANY 

## New York, NY

## Actuarial Memorandum for VIP2 Series

June 13, 2018
b. Voluntary Termination Rates vary by duration as developed from actual experience through June 30, 2016 and are shown in the following table:

Voluntary Termination Rates

| Policy Duration | Lapse Rate |
| :---: | :---: |
| 1 | $5.00 \%$ |
| 2 | $4.50 \%$ |
| 3 | $4.00 \%$ |
| 4 | $3.50 \%$ |
| 5 | $2.50 \%$ |
| 6 | $2.00 \%$ |
| 7 | $1.80 \%$ |
| 8 | $1.50 \%$ |
| 9 | $1.30 \%$ |
| 10 | $1.10 \%$ |
| $11+$ | $1.10 \%$ |

In the year of rate increase implementation, it is assumed that an additional 4.0\% of policies lapse and there is $3.0 \%$ net reduction to future premiums and benefits due to benefit downgrades. There is no adverse selection assumed due to the additional lapse rates.
c. Mortality $88 \%$ of Annuity 2000 Basic Table with selection consistent with experience.
d. Expenses Expenses have not been explicitly projected. It is assumed that the originally filed expense assumptions remain appropriate.

The above assumptions are based on actual inforce experience of MetLife and are deemed reasonable for these particular policy forms. In establishing the assumptions described in this section, the policy design, underwriting, and claims adjudication practices for the above-referenced policy forms were taken into consideration.

## 6. Marketing Method

These policy forms were marketed by agents and brokers of MetLife.

## 7. Underwriting Description

These policy forms were fully underwritten with the use of various underwriting tools in addition to the application, which may have included medical records, an attending physician's statement, telephone interview and/or face-to-face assessment.

# METROPOLITAN LIFE INSURANCE COMPANY 

New York, NY

## Actuarial Memorandum for VIP2 Series

June 13, 2018

## 8. Premiums

Premiums are unisex, but vary by issue age, rating class, benefit period, initial daily benefit, waiting period, home and community care percentage, inflation protection option, payment method, premium mode and the selection of any other options or riders.

## 9. Issue Age Range

These policy forms were issued up to age 84 .

## 10. Area Factors

Area factors are not used for this product.

## 11. Premium Modalization Rules

The following modal factors are applied to the annual premium (AP):

| Premium Mode | Modal Factors |
| :---: | :---: |
| Annual | $1.00^{*} \mathrm{AP}$ |
| Semi-Annual | $0.51^{*} \mathrm{AP}$ |
| Quarterly | $0.265^{*} \mathrm{AP}$ |
| Monthly | 0.0 A $^{*} \mathrm{AP}$ |

## 12. Reserves

Active life reserves have not been used in this rate increase analysis. Claim reserves as of December 31, 2016 have been discounted to the incurral date of each respective claim and included in historical incurred claims. Incurred but not reported reserve balances as of December 31, 2016 have been allocated to a calendar year of incurral and included in historical incurred claims.

## 13. Trend Assumptions

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

## 14. Past and Future Policy Experience

Nationwide and Maryland experience for policy form series LTC2-FAC, LTC2-VAL, LTC2IDEAL, and LTC2-PREM are shown in Exhibit I-A and I-B, respectively.

# METROPOLITAN LIFE INSURANCE COMPANY 

New York, NY<br>Actuarial Memorandum for VIP2 Series

June 13, 2018
Historical experience is shown by claim incurral year. Claim payments and reserves were discounted to the mid-point of the year of incurral at the weighted average maximum valuation interest rate for contract reserves which is $4.02 \%$. Incurred but not reported reserve balances as of December 31, 2016 have been allocated to a calendar year of incurral and included in historical incurred claims.

Annual loss ratios are calculated, with and without interest, as incurred claims divided by earned premiums.

A lifetime loss ratio as of December 31, 2016 is calculated as the sum of accumulated past experience and discounted future experience where accumulation and discounting occur at the weighted average maximum valuation interest rate for contract reserves, which is $4.02 \%$.

## 15. Projected Earned Premiums and Incurred Claims

Earned premiums for projection years 2017 through 2097 are developed by multiplying each prior period's earned premium (starting with December 31, 2016 actual earned premium) by a persistency factor. For a year in which the rate increase is effective, the earned premium prior to the increase is multiplied by 1 plus the rate increase percent and an effectiveness factor.

Each projection year claim amount is calculated by multiplying incidence, continuance and utilization factors by the policy and rider benefits on a seriatim basis.

Present and accumulated values in the lifetime projections in Exhibit I are determined at the average maximum valuation interest rate for contract reserves applicable to LTC business issued in the years in which the applicable business of this filing were issued. The maximum valuation interest rate averages $4.02 \%$.

The assumptions used in the projections in Exhibit I were developed from the company's LTC insurance experience.

Projections in Exhibit II provide a demonstration that 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 $58 \%$;
2. $85 \%$ of the accumulated value of prior premium rate schedule increases;
3. Present value of future projected initial earned premium times $58 \%$; and
4. $85 \%$ of the present value of future projected premium in excess of the projected initial earned premium.

# METROPOLITAN LIFE INSURANCE COMPANY 

New York, NY<br>\section*{Actuarial Memorandum for VIP2 Series}

June 13, 2018

## 16. History of Previous Inforce Rate Increases

| Round | Authorized \% | Authorization Date | Implementation Date |
| :---: | :---: | :---: | :---: |
| 1 | $15.00 \%$ | $3 / 5 / 2014$ | $8 / 1 / 2014$ |
| 2 | $15.00 \%$ | $5 / 4 / 2016$ | $9 / 1 / 2016$ |

The experience and projections in Exhibit I-A have been restated to reflect a rate level similar to that authorized in Maryland on a nationwide basis.

## 17. Requested Rate Increase

The company is requesting two rate increases of $15.00 \%$ each, resulting in a cumulative compounded increase of $32.25 \%$. Corresponding rate tables reflecting the increases are included with this filing.

| Phase | Request | Expected Implementation Date |
| :---: | :---: | :---: |
| 1 | $15 \%$ | $1 / 1 / 2019$ |
| 2 | $15 \%$ | $4 / 1 / 2020$ |

The actual rates implemented may vary slightly from those filed due to implementation rounding algorithms. Also note that the increase will only apply to those policies issued to policyholders in your state in connection with policy applications dated on or before January 15, 2009, because policies issued in connection with later applications were subject to a revised premium rate schedule.

## 18. Analysis Performed

The initial premium schedule was based on pricing assumptions believed to be appropriate, given the information available, at the time the initial rate schedule was developed. The original pricing assumptions for claim costs, voluntary termination rates, and mortality were as follows:
a. Incidence and continuance rates: The basis for the morbidity assumptions used in pricing was that contained in the SOA LTC valuation diskette. These were based on the results of the 1985 National Nursing Home Survey and the 1982-84 National Long Term Care Survey.

Modifications to the SOA LTC valuation assumptions were made based on the actual experience of MetLife's block of business. Additional modifications were made based on the results of an internal analysis of MetLife’s Competitors' Rate Structure.

The additional modification was required due to the make-up of MetLife's block of business, which consisted of two large blocks of group business (Employer Group and Association Group). This business was issued under drastically different underwriting requirements than those that are used to issue business under this policy form.

# METROPOLITAN LIFE INSURANCE COMPANY 

New York, NY

## Actuarial Memorandum for VIP2 Series

June 13, 2018
b. The original pricing expected voluntary termination rates varied by duration as shown in the following table:

| Policy Duration | Lapse Rate |
| :---: | :---: |
| 1 | $6.25 \%$ |
| 2 | $3.50 \%$ |
| $3-7$ | $3.00 \%$ |
| 8 | $2.50 \%$ |
| 9 | $2.25 \%$ |
| $10-12$ | $2.00 \%$ |
| $13-14$ | $1.75 \%$ |
| $15+$ | $1.50 \%$ |

c. The original pricing expected mortality rates were equal to $105 \%$ of the Annuity 2000 Basic Mortality Table modified by Projection Scale H. There were additional modifications to reflect the selection effects of underwriting.

As part of the in-force management of its long-term care insurance business, MetLife monitors its performance by completing periodic analyses of lapse rates, mortality rates, claim incidence rates, claim continuance rates and claim utilization rates. The findings from these analyses were used to determine the current experience assumptions. A model of this business was developed for use in the cash flow testing that is part of the company's annual statutory reporting requirements. Using this model, a future projection of these policies under the new experience assumptions was performed and the projected lifetime loss ratio for these policies was determined. For these policies, the past experience and future projections based on current experience assumptions combine to a resulting loss ratio that far exceeds both original pricing expectations and state minimum requirements.

Similar analyses were done for the prior premium rate increases. Since then, morbidity levels have been worse than that assumed in the prior rate increase.

The experience analysis, management's view of when a change to the original rate schedule may be considered, and the seriatim inforce and claim data used in developing the projections in Exhibit I have been relied upon by the actuary in the development of this memorandum.

## 19. Loss Ratio Requirement Compliance Demonstration

Projected experience assuming the increases are implemented is shown in Exhibit I-A and I-B. As shown in these exhibits, the expected lifetime loss ratio, both with and without the requested rate increase, exceeds the minimum loss ratio requirement.

# METROPOLITAN LIFE INSURANCE COMPANY 

## New York, NY

## Actuarial Memorandum for VIP2 Series

June 13, 2018

## 20. Average Annual Premium

The average September 30, 2017 annualized premium for all premium-paying policies before and after the requested increases are:

Before increase:
After $1^{\text {st }}$ phase of $15 \%$ :
After $2^{\text {nd }}$ phase of $15 \%$ :
The average September 30, 2017 annualized premiums for all premium-paying policies issued in Maryland, before and after the requested increases are:

Before increase:
\$2,925
After $1^{\text {st }}$ phase of $15 \%$ :
\$3,364
After $2^{\text {nd }}$ phase of $15 \%$ :
\$3,869

## 21. Proposed Effective Date

This rate increase will become effective on each policy's modal premium due date (monthly, quarterly, semi-annually and annually) following at least a 60-day advance written notification to the policyholder.

## 22. Nationwide Distribution of Business as of September 30, 2017 (based on premium-paying policies inforce count)

By Issue Age

| Issue Age | $\mathbf{\%}$ |
| :---: | :---: |
| $<45$ | $9 \%$ |
| $45-49$ | $9 \%$ |
| $50-54$ | $19 \%$ |
| $55-59$ | $28 \%$ |
| $60-64$ | $23 \%$ |
| $65-69$ | $10 \%$ |
| $70-74$ | $3 \%$ |
| $75+$ | $1 \%$ |
| Total | $100 \%$ |

## METROPOLITAN LIFE INSURANCE COMPANY

New York, NY

## Actuarial Memorandum for VIP2 Series

June 13, 2018
By Benefit Period

| Benefit Period | $\mathbf{\%}$ |
| :---: | :---: |
| 2 Year | $12 \%$ |
| 3 Year | $32 \%$ |
| 4 Year | $16 \%$ |
| 5 Year | $26 \%$ |
| 7 Year | $3 \%$ |
| Lifetime | $11 \%$ |
| Total | $100 \%$ |

By Inflation Type

| Inflation Type | $\mathbf{\%}$ |
| :---: | :---: |
| Compound 3\% | $0 \%$ |
| Compound 5\% | $48 \%$ |
| Simple 5\% | $36 \%$ |
| FPO | $5 \%$ |
| None | $11 \%$ |
| Total | $100 \%$ |

By Home Care Percentage

| Home Care <br> Percentage | \% |
| :---: | :---: |
| None (FC only) | $1 \%$ |
| $50 \%$ | $4 \%$ |
| $75 \%$ | $5 \%$ |
| $100 \%$ | $90 \%$ |
| Total | $100 \%$ |

By Gender

| Gender | \% |
| :---: | :---: |
| Female | $58 \%$ |
| Male | $42 \%$ |
| Total | $100 \%$ |

# METROPOLITAN LIFE INSURANCE COMPANY 

New York, NY

## Actuarial Memorandum for VIP2 Series

June 13, 2018
By Premium Payment Option

| Payment Option | \% |
| :---: | :---: |
| Double Pay | $1 \%$ |
| Paid - Up | $0 \%$ |
| Reduced Pay | $1 \%$ |
| Standard | $96 \%$ |
| Ten Year | $2 \%$ |
| Total | $100 \%$ |

## 23. Number of Policyholders

As of September 30, 2017, the number of premium-paying policies inforce and premiums that will be affected by this increase are:

|  | Issued Before Rate |  | Issued On or After Rate |  |
| :---: | :---: | :---: | :---: | :---: |
|  | Stability Regulation Effective Date | Stability Regulation Effective Date |  |  |
|  | Number of | $\mathbf{2 0 1 7}$ | Number of | $\mathbf{2 0 1 7}$ |
|  | Insured | Annualized Premium | Insured | Annualized Premium |
| Maryland | - |  | 1,236 | $\$ 3,615,246$ |
| Nationwide | 20,998 | $\$ 61,332,365$ | 41,478 | $\$ 104,065,945$ |

## 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 preparing health rate filings and to render the actuarial opinion contained herein.

This memorandum has been prepared in conformity with all applicable Actuarial Standards of Practice, including ASOP No. 8.

I hereby certify that, to the best of my knowledge and judgment, this rate submission is in compliance with the applicable laws and regulations of Maryland except the filing does not include the certification required for certain policies subject to your Department's long-term care Rate Stability rules. A larger rate increase would be needed in order to certify.

I further certify that:

- the analysis described in Section 18 of this memorandum was used in determining the need for a rate increase;


# METROPOLITAN LIFE INSURANCE COMPANY 

## New York, NY

## Actuarial Memorandum for VIP2 Series

June 13, 2018

- the policy design, underwriting and claims adjudication practices have been taken into consideration in this rate increase request;
- the actuarial assumptions are appropriate and the gross premiums bear reasonable relationship to the benefits; and
- the relationship between renewal premium rate schedules and new business premium rate schedules is not applicable because we are no longer marketing new business.


## ManR Dlenton

Mark D. Newton, FSA, MAAA
Actuarial Director, Metropolitan Life Insurance Company

Metropositan Lititibis Insura





Exhibit - -A
Netropolitan Lititininsurance Company
Nationwide Experience Projections (Premium Normpoitizan titie insuruance Company



The projections are based on the assumplions derived using experience data through $6 / 30 / 2016$.

## Exhibit II-A

Demonstration that Lifetime Incurred Claims with Requested Increase are
Not Less than Lifetime Earned Premium with Prescribed Factors
Policy Forms: LTC2-FAC, LTC2- VAL, LTC2-IDEAL and LTC2-PREM

| 1 Accumulated value of initial earned premium | 1,988,109,154 | x | 58\% | $=$ | 1,153,103,310 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 2a Accumulated value of earned premium | 2,039,346,609 |  |  |  |  |
| 2 b Accumulated value of prior premium rate schedule increases (2a-1) | 51,237,454 | $x$ | 85\% | $=$ | 43,551,836 |
| 3 Present value of future projected initial earned premium | 1,375,371,972 | $x$ | 58\% | = | 797,715,744 |
| 4a Present value of future projected premium | 2,095,506,564 |  |  |  |  |
| 4b Present value of future projected premium in excess of the projected initial earned premiums (4a-3) | 720,134,592 | x | 85\% | $=$ | 612,114,403 |
| 5 Lifetime Earned Premium Times Prescribed Factor: Sum of 1, 2b, 3, and 4b |  |  |  |  | 2,606,485,293 |
| 6a Accumulated value of incurred claims without the inclusion of active life reserves |  |  |  |  | 131,780,859 |
| 6b Present value of future projected incurred claims without the inclusion of active life reserves |  |  |  |  | 3,815,163,164 |
| 7 Lifetime Incurred Claims with Rate Increase: Sum of $\mathbf{6 a}$ and 6b |  |  |  |  | 3,946,944,023 |
| 8 Test: 7 is not less than 5 |  |  |  |  | TRUE |

Potions (Premium Normalized to onclude Prior Authorized ncreases)

-The 1st round authorized increase of $15 \%$ was implemented from August 2014 through July 201


.
The projections are based on the assumpions defived using experience datat through $6 / 301201216$.

## Exhibit II-B

## Demonstration that Lifetime Incurred Claims with Requested Increase are

Not Less than Lifetime Earned Premium with Prescribed Factors
Policy Forms: LTC2-FAC, LTC2- VAL, LTC2-IDEAL and LTC2-PREM

| 1 Accumulated value of initial earned premium | 41,722,338 | x | 58\% | $=$ | 24,198,956 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 2a Accumulated value of earned premium | 42,813,212 |  |  |  |  |
| 2 b Accumulated value of prior premium rate schedule increases (2a-1) | 1,090,874 | x | 85\% | $=$ | 927,243 |
| 3 Present value of future projected initial earned premium | 28,941,139 | x | 58\% | = | 16,785,861 |
| 4a Present value of future projected premium | 44,134,762 |  |  |  |  |
| 4b Present value of future projected premium in excess of the projected initial earned premiums (4a-3) | 15,193,623 | x | 85\% | $=$ | 12,914,579 |
| 5 Lifetime Earned Premium Times Prescribed Factor: Sum of 1, 2b, 3, and 4b |  |  |  |  | 54,826,639 |
| 6a Accumulated value of incurred claims without the inclusion of active life reserves |  |  |  |  | 3,958,957 |
| 6b Present value of future projected incurred claims without the inclusion of active life reserves |  |  |  |  | 80,957,485 |
| 7 Lifetime Incurred Claims with Rate Increase: Sum of $\mathbf{6 a}$ and 6b |  |  |  |  | 84,916,442 |
| 8 Test: 7 is not less than 5 |  |  |  |  | TRUE |

Attachment 1
Metropolitan Life Insurance Company
Policy Forms: LTC2-FAC, LTC2-VAL, LTC2-IDEAL and LTC2-PREM
Assumptions Summary


Attachment 2
Metropolitan Life Insurance Company
Nationwide Experience Projections (Premium Normalized to Include Prior Authorized Increases) and With No Future Increase Actual to Expected Ratios
Policy Forms: LTC2-FAC, LTC2- VAL, LTC2-IDEAL and LTC2- PREM

| Duration | Actual Experience through 12/31/2016 Projections based on Current Assumptions |  |  | Reproduced based on Original Pricing Assumptions since inception |  |  | G = C / F |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | A | B | $\mathrm{C}=\mathrm{B} / \mathrm{A}$ | D | E | F = E / D |  |
|  | Earned Premium | Incurred Claims | Loss <br> Ratio | Earned Premium | Incurred Claims | Loss <br> Ratio | Actual to Expected Ratio |
| 1 | 116,790,535 | 814,500 | 0.7\% | 116,790,535 | 4,183,597 | 3.6\% | 0.19 |
| 2 | 216,059,493 | 3,883,013 | 1.8\% | 216,059,493 | 11,760,246 | 5.4\% | 0.33 |
| 3 | 197,427,097 | 5,105,058 | 2.6\% | 202,739,656 | 14,513,341 | 7.2\% | 0.36 |
| 4 | 183,562,386 | 6,657,700 | 3.6\% | 190,550,008 | 20,460,527 | 10.7\% | 0.34 |
| 5 | 173,373,515 | 8,986,228 | 5.2\% | 178,572,718 | 23,486,540 | 13.2\% | 0.39 |
| 6 | 167,500,725 | 14,367,043 | 8.6\% | 166,906,231 | 26,304,861 | 15.8\% | 0.54 |
| 7 | 164,072,451 | 17,239,808 | 10.5\% | 155,523,198 | 29,304,877 | 18.8\% | 0.56 |
| 8 | 164,637,111 | 15,412,444 | 9.4\% | 144,444,200 | 32,036,176 | 22.2\% | 0.42 |
| 9 | 168,069,493 | 22,330,739 | 13.3\% | 134,334,035 | 41,499,906 | 30.9\% | 0.43 |
| 10 | 171,535,932 | 32,558,793 | 19.0\% | 124,832,832 | 44,611,261 | 35.7\% | 0.53 |
| 11 | 163,968,617 | 35,650,034 | 21.7\% | 116,056,904 | 48,535,348 | 41.8\% | 0.52 |
| 12 | 152,929,552 | 45,181,058 | 29.5\% | 107,611,964 | 51,136,327 | 47.5\% | 0.62 |
| 13 | 148,162,128 | 52,141,724 | 35.2\% | 99,480,141 | 53,553,962 | 53.8\% | 0.65 |
| 14 | 143,365,946 | 59,568,692 | 41.6\% | 91,801,428 | 65,306,690 | 71.1\% | 0.58 |
| 15 | 138,453,189 | 68,343,610 | 49.4\% | 84,376,585 | 67,929,000 | 80.5\% | 0.61 |
| 16 | 133,462,853 | 78,611,822 | 58.9\% | 77,579,982 | 70,606,477 | 91.0\% | 0.65 |
| 17 | 128,313,172 | 90,486,107 | 70.5\% | 71,121,343 | 72,784,796 | 102.3\% | 0.69 |
| 18 | 123,073,636 | 104,042,476 | 84.5\% | 64,979,722 | 74,574,231 | 114.8\% | 0.74 |
| 19 | 117,781,873 | 119,313,730 | 101.3\% | 59,101,781 | 85,124,599 | 144.0\% | 0.70 |
| 20 | 112,395,727 | 136,243,642 | 121.2\% | 53,550,019 | 86,526,050 | 161.6\% | 0.75 |
| 21 | 106,904,985 | 154,765,953 | 144.8\% | 48,392,935 | 90,532,801 | 187.1\% | 0.77 |
| 22 | 101,347,578 | 174,714,606 | 172.4\% | 43,608,147 | 91,219,551 | 209.2\% | 0.82 |
| 23 | 95,748,631 | 195,921,656 | 204.6\% | 39,155,987 | 91,506,050 | 233.7\% | 0.88 |
| 24 | 90,097,218 | 218,038,664 | 242.0\% | 35,019,990 | 97,166,894 | 277.5\% | 0.87 |
| 25 | 84,425,288 | 240,588,073 | 285.0\% | 31,221,291 | 96,661,236 | 309.6\% | 0.92 |
| 26 | 78,774,844 | 263,160,261 | 334.1\% | 27,749,472 | 101,104,958 | 364.3\% | 0.92 |
| 27 | 73,176,104 | 285,173,357 | 389.7\% | 24,583,809 | 99,662,356 | 405.4\% | 0.96 |
| 28 | 67,658,322 | 306,121,476 | 452.5\% | 21,711,386 | 97,639,899 | 449.7\% | 1.01 |
| 29 | 62,245,249 | 325,511,916 | 523.0\% | 19,106,082 | 94,998,023 | 497.2\% | 1.05 |
| 30 | 56,989,153 | 342,730,742 | 601.4\% | 16,780,290 | 92,022,947 | 548.4\% | 1.10 |
| 31 | 51,905,017 | 357,376,986 | 688.5\% | 14,689,418 | 97,657,060 | 664.8\% | 1.04 |
| 32 | 47,029,611 | 369,016,691 | 784.6\% | 12,793,289 | 94,216,795 | 736.5\% | 1.07 |
| 33 | 42,376,466 | 377,170,805 | 890.0\% | 11,098,381 | 90,407,337 | 814.6\% | 1.09 |
| 34 | 37,977,403 | 381,732,691 | 1005.2\% | 9,583,476 | 85,029,173 | 887.2\% | 1.13 |
| 35 | 33,847,635 | 382,629,034 | 1130.4\% | 8,250,507 | 80,367,915 | 974.1\% | 1.16 |
| 36 | 30,002,948 | 379,923,055 | 1266.3\% | 7,067,480 | 77,694,207 | 1099.3\% | 1.15 |
| 37 | 26,448,547 | 373,767,695 | 1413.2\% | 6,024,990 | 72,230,316 | 1198.8\% | 1.18 |
| 38 | 23,187,571 | 364,315,338 | 1571.2\% | 5,105,961 | 66,394,498 | 1300.3\% | 1.21 |
| 39 | 20,218,012 | 351,942,493 | 1740.7\% | 4,301,572 | 60,321,692 | 1402.3\% | 1.24 |
| 40 | 17,531,339 | 337,159,995 | 1923.2\% | 3,609,079 | 54,320,795 | 1505.1\% | 1.28 |
| 41 | 15,119,812 | 320,310,132 | 2118.5\% | 3,012,438 | 49,395,088 | 1639.7\% | 1.29 |
| 42 | 12,969,172 | 301,773,681 | 2326.9\% | 2,507,680 | 44,103,912 | 1758.8\% | 1.32 |
| 43 | 11,066,466 | 282,051,035 | 2548.7\% | 2,084,123 | 39,129,752 | 1877.5\% | 1.36 |
| 44 | 9,397,168 | 261,562,789 | 2783.4\% | 1,725,345 | 34,538,589 | 2001.8\% | 1.39 |
| 45 | 7,943,286 | 240,807,684 | 3031.6\% | 1,417,890 | 30,335,323 | 2139.5\% | 1.42 |
| 46 | 6,685,756 | 220,139,005 | 3292.7\% | 1,158,025 | 26,872,903 | 2320.6\% | 1.42 |
| 47 | 5,604,611 | 199,806,333 | 3565.0\% | 946,664 | 23,406,875 | 2472.6\% | 1.44 |
| 48 | 4,680,207 | 180,115,309 | 3848.4\% | 774,148 | 20,331,532 | 2626.3\% | 1.47 |
| 49 | 3,894,032 | 161,393,561 | 4144.6\% | 632,437 | 17,686,685 | 2796.6\% | 1.48 |
| 50 | 3,228,723 | 143,767,165 | 4452.8\% | 515,487 | 15,334,149 | 2974.7\% | 1.50 |
| 51 | 2,668,848 | 127,396,209 | 4773.5\% | 418,681 | 13,286,728 | 3173.5\% | 1.50 |
| 52 | 2,200,502 | 112,350,749 | 5105.7\% | 339,446 | 11,499,424 | 3387.7\% | 1.51 |
| 53 | 1,810,288 | 98,642,712 | 5449.0\% | 274,888 | 9,902,904 | 3602.5\% | 1.51 |
| 54 | 1,486,071 | 86,277,360 | 5805.7\% | 221,885 | 8,489,252 | 3826.0\% | 1.52 |
| 55 | 1,217,513 | 75,222,776 | 6178.4\% | 177,544 | 7,220,864 | 4067.1\% | 1.52 |
| 56 | 995,685 | 65,435,289 | 6571.9\% | 140,509 | 6,203,023 | 4414.7\% | 1.49 |
| 57 | 812,943 | 56,784,745 | 6985.1\% | 110,554 | 5,268,362 | 4765.4\% | 1.47 |
| 58 | 662,803 | 49,166,466 | 7418.0\% | 86,440 | 4,450,824 | 5149.0\% | 1.44 |
| 59 | 539,583 | 42,518,845 | 7880.0\% | 67,106 | 3,733,081 | 5562.9\% | 1.42 |
| 60 | 438,562 | 36,738,288 | 8377.0\% | 51,666 | 3,108,593 | 6016.7\% | 1.39 |


| Lifetime | $4,326,249,384$ | $10,160,959,842$ | $234.9 \%$ | $2,862,929,273$ | $3,029,691,179$ | $105.8 \%$ | 2.22 | 1.83 |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Lifetime* | $2,564,941,146$ | $2,822,977,953$ | $110.1 \%$ | $1,943,488,689$ | $1,165,388,827$ | $60.0 \%$ |  |  |
| Note: |  |  |  |  |  |  |  |  |

- Figures in column A are normalized to reflect the prior rate actions authorized by Maryland (15\% on March 5, 2014 and 15\% on May 4, 2016) rather than the prior rate action approved by other states.
- Figures in column D and E do not reflect any rate action.

Columns $A$ and $B$ are discounted back to the inception date at an interest rate of $4 \%$, which is the weighted average maximum valuation interest rate for contract reserves. Columns D and E are discounted back to the inception date at the original pricing interest rate of 4\%.

Policy Forms: LTC2-FAC, LTC2- VAL, LTC2-IDEAL and LTC2- PREM


Note:
Figures in column A are normalized to reflect the prior rate actions authorized by Maryland ( $15 \%$ on March 5,2014 and $15 \%$ on May 4, 2016) rather than the prior rate action
Figures in column D do not reflect any rate action

# Attachment 4 

Metropolitan Life Insurance Company
Actual to Expected Lapse/Mortality Individual Business

| Lapse |  |  |  |
| :---: | :---: | :---: | :---: |
| Policy <br> Duration | Actual | Expected * | A/E\% |
| 1 | 11,005 | 12,576 | $87.51 \%$ |
| 2 | 13,869 | 10,602 | $130.82 \%$ |
| 3 | 9,584 | 8,983 | $106.70 \%$ |
| 4 | 6,951 | 7,536 | $92.24 \%$ |
| 5 | 5,557 | 4,842 | $114.76 \%$ |
| 6 | 3,703 | 3,475 | $106.57 \%$ |
| 7 | 2,683 | 2,861 | $93.79 \%$ |
| 8 | 1,960 | 2,173 | $90.20 \%$ |
| 9 | 1,470 | 1,584 | $92.81 \%$ |
| $10+$ | 2,634 | 3,386 | $77.79 \%$ |


| Mortality |  |  |  |
| :---: | :---: | :---: | :---: |
| Policy <br> Duration | Actual | Expected * | A/E\% |
| 1 | 536 | 541 | $99.05 \%$ |
| 2 | 924 | 1,129 | $81.85 \%$ |
| 3 | 1,110 | 1,317 | $84.25 \%$ |
| 4 | 1,316 | 1,663 | $79.12 \%$ |
| 5 | 1,532 | 1,922 | $79.73 \%$ |
| 6 | 1,694 | 2,194 | $77.22 \%$ |
| 7 | 1,859 | 2,446 | $75.99 \%$ |
| 8 | 2,052 | 2,691 | $76.24 \%$ |
| 9 | 2,105 | 2,872 | $73.29 \%$ |
| 10 | 2,268 | 3,000 | $75.61 \%$ |
| 11 | 2,270 | 3,049 | $74.45 \%$ |
| 12 | 2,125 | 2,668 | $79.64 \%$ |
| 13 | 1,883 | 2,201 | $85.57 \%$ |
| $14+$ | 4,505 | 4,701 | $95.82 \%$ |

* The expecteds are based on current best estimate assumptions.

Attachment 4
Metropolitan Life Insurance Company
Actual to Expected Incidence
Individual Business

| Individual Business |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Female |  |  |  |  |  | Male |  |  |  |  |  |
|  | Facility Care |  |  | Home Care |  |  | Facility Care |  |  | Home Care |  |  |
| Calendar Year | Actual Claims ${ }^{1}$ | Expected Claims ${ }^{2}$ | A/E\% | Actual Claims ${ }^{1}$ | Expected Claims ${ }^{2}$ | A/E\% | Actual Claims ${ }^{1}$ | Expected Claims ${ }^{2}$ | A/E\% | Actual Claims ${ }^{1}$ | Expected Claims ${ }^{2}$ | A/E\% |
| 2002 | 3 | 2 | 152\% | 1 | 1 | 78\% | 2 | 1 | 282\% | 0 | 1 | 0\% |
| 2003 | 14 | 8 | 186\% | 6 | 5 | 115\% | 4 | 3 | 133\% | 2 | 3 | 67\% |
| 2004 | 19 | 17 | 114\% | 15 | 13 | 119\% | 7 | 6 | 111\% | 5 | 7 | 71\% |
| 2005 | 33 | 27 | 121\% | 16 | 20 | 79\% | 15 | 11 | 140\% | 9 | 12 | 76\% |
| 2006 | 49 | 40 | 124\% | 33 | 31 | 106\% | 23 | 16 | 144\% | 18 | 18 | 99\% |
| 2007 | 80 | 57 | 141\% | 55 | 48 | 116\% | 34 | 25 | 138\% | 31 | 29 | 105\% |
| 2008 | 114 | 81 | 141\% | 88 | 73 | 121\% | 33 | 37 | 90\% | 43 | 47 | 92\% |
| 2009 | 110 | 105 | 105\% | 91 | 96 | 95\% | 53 | 48 | 109\% | 56 | 60 | 93\% |
| 2010 | 129 | 130 | 99\% | 99 | 115 | 86\% | 65 | 59 | 109\% | 82 | 75 | 110\% |
| 2011 | 157 | 155 | 101\% | 135 | 136 | 99\% | 68 | 74 | 92\% | 77 | 91 | 84\% |
| 2012 | 197 | 182 | 108\% | 162 | 157 | 103\% | 93 | 88 | 106\% | 120 | 109 | 110\% |
| 2013 | 209 | 214 | 98\% | 168 | 180 | 93\% | 98 | 104 | 95\% | 103 | 126 | 82\% |
| 2014 | 235 | 248 | 95\% | 201 | 204 | 99\% | 105 | 122 | 86\% | 156 | 146 | 107\% |
| 2015 | 264 | 278 | 95\% | 233 | 219 | 106\% | 124 | 141 | 88\% | 170 | 165 | 103\% |
| Total | 1,613 | 1,543 | 105\% | 1,303 | 1,297 | 100\% | 724 | 734 | 99\% | 872 | 890 | 98\% |

${ }^{1}$ Based on actual experience through 6/30/2016 including adjustments for incurred but not reported claims.
${ }^{2}$ The expected claims are based on current best estimate assumptions.

Attachment 4
Metropolitan Life Insurance Company Actual to Expected Claim Terminations All Business (excl. AARP-Pru)

| Claim Duration (Months) | Non AARP-Pru Block |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Actual Deaths | Expected Deaths ${ }^{1}$ | Actual Recoveries | Expected Recoveries ${ }^{1}$ | Deaths <br> A/E\% | Recoveries A/E\% | Total A/E\% |
| 1 | 774 | 482 | 59 | 75 | 160\% | 78\% | 149\% |
| 2 | 703 | 1,197 | 156 | 233 | 59\% | 67\% | 60\% |
| 3 | 746 | 1,036 | 218 | 222 | 72\% | 98\% | 77\% |
| 4 | 834 | 1,139 | 294 | 252 | 73\% | 116\% | 81\% |
| 5 | 831 | 934 | 262 | 206 | 89\% | 127\% | 96\% |
| 6 | 726 | 816 | 196 | 179 | 89\% | 110\% | 93\% |
| 7 | 623 | 676 | 174 | 148 | 92\% | 118\% | 97\% |
| 8 | 561 | 582 | 131 | 122 | 96\% | 107\% | 98\% |
| 9 | 546 | 510 | 104 | 103 | 107\% | 101\% | 106\% |
| 10 | 465 | 459 | 114 | 88 | 101\% | 130\% | 106\% |
| 11 | 443 | 423 | 73 | 76 | 105\% | 96\% | 103\% |
| 12 | 469 | 397 | 80 | 67 | 118\% | 119\% | 118\% |
| 13+ | 11,666 | 10,750 | 1,254 | 1,365 | 109\% | 92\% | 107\% |
| Total | 19,387 | 19,402 | 3,115 | 3,137 | 100\% | 99\% | 100\% |

${ }^{1}$ The expected deaths and recoveries are based on current best estimate assumptions.

