

# MARYLAND GAS UTILITY SPENDING

Updated revenue projections  
and bill impact analysis

November 2023

# TABLE OF CONTENTS

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## CONTENTS

### SECTION ONE

|                          |          |
|--------------------------|----------|
| <b>Introduction.....</b> | <b>4</b> |
|--------------------------|----------|

### SECTION TWO

|                                                       |          |
|-------------------------------------------------------|----------|
| <b>New Filings and Capital Investment Plans.....</b>  | <b>7</b> |
| 2.1. BGE Capital Plans and Spending Projections ..... | 7        |
| 2.2. WGL Capital Plans and Spending Projections.....  | 10       |
| 2.3. CMD Capital Plans and Spending Projections ..... | 16       |
| 2.4. Combined Investment Projections .....            | 21       |

### SECTION THREE

|                                                                    |           |
|--------------------------------------------------------------------|-----------|
| <b>Updated Revenue Requirement and Bill Impact Forecasts .....</b> | <b>23</b> |
| 3.1. Methodology and Revised Assumptions.....                      | 23        |
| 3.2. Annual Revenue Requirement Projections .....                  | 24        |
| 3.3. Rate Impacts.....                                             | 27        |

### SECTION FOUR

|                                   |           |
|-----------------------------------|-----------|
| <b>Alternative Pathways .....</b> | <b>30</b> |
|-----------------------------------|-----------|

## LIST OF FIGURES

---

|                                                                                              |    |
|----------------------------------------------------------------------------------------------|----|
| Figure 2.1: BGE STRIDE Actual / Updated Projected Expenditures .....                         | 9  |
| Figure 2.2: BGE Capital Investment Actuals / Projections .....                               | 10 |
| Figure 2.3: WGL STRIDE Actual (2014-2022) / Updated Projected Expenditures (2023-2043) ..... | 15 |
| Figure 2.4: WGL Capital Investment Actual / Projections .....                                | 16 |
| Figure 2.5: CMD STRIDE 2 Budget vs. Actual Annual Expenditures.....                          | 17 |
| Figure 2.6: CMD STRIDE Actual (2014-2022) / Updated Projected Expenditures (2023-2043) ..... | 19 |
| Figure 2.7: CMD Capital Investment Actual / Projections.....                                 | 20 |
| Figure 2.8: Changes in STRIDE Expenditure Projections .....                                  | 21 |
| Figure 2.9: Changes in Total Capital Expenditure Projections .....                           | 22 |
| Figure 3.1: BGE Revenue Requirement Projections (2024-2100) .....                            | 24 |
| Figure 3.2: WGL Revenue Requirement Projections (2024-2100) .....                            | 25 |
| Figure 3.3: CMD Revenue Requirement Projections (2024-2100).....                             | 26 |
| Figure 3.4: STRIDE Revenue Requirements .....                                                | 26 |
| Figure 3.5: Projected Gas Customer Payments Toward CAPEX (Billion \$), 2022-2100.....        | 27 |
| Figure 3.6: BGE Typical Winter Bill, 2014-2100 .....                                         | 28 |
| Figure 3.7: WGL Typical Winter Bill, 2014-2100.....                                          | 29 |
| Figure 3.8: CMD Typical Winter Bill, 2014-2100 .....                                         | 29 |
| Figure 4.1: Alternative Capital Expenditure Pathways, Cumulative Expenditures 2024-2100..... | 30 |
| Figure 4.2: Alternative Combined Revenue Requirement Pathways.....                           | 31 |

## LIST OF TABLES

---

|                                                                              |    |
|------------------------------------------------------------------------------|----|
| Table 2.1: BGE Non-STRIDE Investment Projections .....                       | 10 |
| Table 2.2: STRIDE 3 Distribution Programs and Updated Program Durations..... | 13 |
| Table 2.3: WGL Non-STRIDE Investment Projections.....                        | 16 |
| Table 2.4: CMD Non-STRIDE Investment Projections .....                       | 20 |
| Table 2.5: All-Time STRIDE Investment Projections .....                      | 21 |
| Table 2.6: Total Maryland Capital Investment Projections (\$ million) .....  | 22 |
| Table 3.1: CAPEX Revenue Requirement Assumptions.....                        | 24 |

## SECTION ONE

# INTRODUCTION

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The evolving regulatory landscape of gas infrastructure investment and its subsequent impact on costs for residential utility customers presents perhaps the most important issue facing Maryland utility customers. In October 2022, OPC released [Maryland Gas Utility Spending: Projections and Analysis](#) (the “2022 Gas Spending Report”), prepared by DHInfrastructure. This report provided critical information on current and future spending on gas capital projects by Maryland’s three largest local gas distribution companies: Baltimore Gas and Electric (BGE), Columbia Gas of Maryland (CMD), and Washington Gas Light (WGL). Using information provided by the companies in regulatory filings and other publicly available information, the report presented projections on each company’s capital investment expenditures from 2022 to 2100 under a business-as-usual scenario. These capital projections were then used to estimate how consumer bills would change over this period under this scenario.

The 2022 Gas Spending Report is an artifact of history in light of utility proposals over the past year that would substantially increase the scale of gas utility infrastructure investments. Despite this report only being a year old, the information relied on in 2022 has already proved stale. All three companies have submitted requests to the Maryland Public Service Commission (“PSC”) for approval of new gas infrastructure capital investment plans, warranting a reevaluation and update of the previous analyses.<sup>1</sup> This report, also prepared by DHInfrastructure, updates the findings from our initial report based on the new filings and capital investment plans, providing a more comprehensive view of the current gas company business-as-usual plans in the absence of regulatory intervention.

**Under the gas companies’ new proposals, spending goes up 60 percent from that projected one year ago.** The projected capital-related revenue requirements that customers of BGE, WGL, and CMD would be expected to pay from 2024 through 2100 goes from \$125 billion in the 2022 study to \$206 billion. Much of this customer impact is for the \$20 billion in investments projected for the first 22-year period from 2024 to 2045, over the same period the State has set a goal to reach net-zero emissions.

At the proposed revised pace of investment, Maryland gas customers will be asked to spend \$41.5 billion from 2024 through 2045 to pay for the gas companies’ gas infrastructure spending: a \$14.3 billion increase over the \$27.2 billion in revenue requirements that we

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<sup>1</sup> BGE submitted a request for approval of its second three-year multi-year rate plan (BGE’s “MRP 2”) in Case Number (“CN”) 9692 on February 17, 2023. WGL submitted a request for approval of its third five-year STRIDE plan (WGL’s “STRIDE 3 plan”) in CN 9708 on June 16, 2023. CMD submitted a request for approval of its third five-year STRIDE plan (CMD’s “STRIDE 3 plan”) in CN 9709 on June 23, 2023.

projected customers to pay for capital expenditures from 2024 to 2045 in the 2022 study.

The Strategic Infrastructure Development and Enhancement (STRIDE) statute, enacted by the Maryland General Assembly in 2013, continues to be a significant driver of the recent rapid increase in BGE, CMD, and WGL capital investments.<sup>2</sup> Under the STRIDE program, the gas companies plan wholesale replacements of most or all of their distribution systems that existed in 2014, the first year of the program. The 2022 report highlighted that gas customers in 2022 have paid only a fraction (about three percent) of the long-term customer costs of STRIDE investments—and because STRIDE remained a pivotal focus of each company’s future capital investment plans, customers would continue paying for STRIDE investments until about the end of the century.

The updated capital spending and revenue requirement projections presented in this report show substantial increases from the corresponding projections in last year’s report for each of the three gas companies:

- BGE’s updated capital-investment revenue requirement projections—the amounts it must collect from customers to cover its distribution system cost—for 2024 through 2100 illustrate that BGE’s capital spending plans have substantially increased. See Figure 2.2. BGE’s average capital-investment revenue requirement from 2024 to 2100 (\$1.97 billion) in the updated projections is 79 percent greater than the average (\$1.09 billion) for this same period in the 2022 report.<sup>3</sup> This increase is driven by the significant jump in

spending for work that is outside of the programs the utility has historically run through the STRIDE program.

- WGL’s updated capital-investment revenue requirement projections for 2024 through 2100 show that its STRIDE 3 plan costs have increased by 33 percent compared to the 2022 projections.<sup>4</sup> See Figure 2.4. WGL’s greatest change occurs in the 2040s, when the full impact of the completed STRIDE investments is reflected, increasing our previous projections by 60 percent. WGL’s new forecasts show that its STRIDE program will not be complete until 2043—eight years later than last year’s report showed it would be complete.
- CMD’s updated capital-investment revenue requirement projections for 2024 through 2100 show the highest percentage increases, as its average revenue requirement from 2024 to 2100 (\$89.2 million) is 87 percent greater than the average (\$47.6 million) for this same period in the 2022 study.<sup>5</sup> See Figure 2.7. Previously, CMD’s STRIDE investments were anticipated to end in 2026, but CMD is now proposing to add two new classes of pipes to its STRIDE program, potentially adding an additional 17 years of STRIDE investments.

CMD is now proposing to add two new classes of pipes to its STRIDE program, potentially adding an additional 17 years of STRIDE investments.

2 The STRIDE statute ([MD Public Utilities Code § 4-210](#)) enables utilities to recover eligible costs of approved STRIDE investments outside of a rate case through a STRIDE surcharge mechanism, allowing them to begin recovering costs when they are incurred, even before the infrastructure is in service, thereby effectively eliminating regulatory lag and accelerating the replacement of natural gas infrastructure.

3 When including OPEX (Figure 3.1), BGE’s revenue requirement projections grow by 66 percent.

4 When including OPEX (Figure 3.2), WGL’s revenue requirement projections still grow by 30 percent.

5 When including OPEX (Figure 3.3), CMD’s revenue requirement projections grow by 70 percent.

The gas companies covered in this report may contend these projections are speculative. That criticism would incorrectly imply the purpose of the report is to predict precisely what gas investments will be in the future. The updated analysis presented in the report is instead provided to help Maryland policymakers and stakeholders understand how the new 2023 capital investment plans submitted by BGE, WGL, and CMD have altered the trajectory of gas investments and future revenue requirements.

The remainder of this document is organized as follows:

- Section 2 summarizes each of the companies' new investment plans that the PSC is currently evaluating and explains how the information in the filings supporting these investments has been used to develop new projections for STRIDE and non-STRIDE capital investments.
- Section 3 presents updated revenue requirement and bill impact forecasts based on new capital investment projections and other information presented in each company's 2023 base rate proposal.
- Section 4 concludes with a set of alternative results for how the statewide revenue requirement for the three companies would change over time under different investment pathways.

## SECTION TWO

# NEW FILINGS AND CAPITAL INVESTMENT PLANS

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This section provides updated capital spending projections for BGE, WGL, and CMD based on both their new capital plans submitted in 2023 and the latest information on actual capital expenditures released since the October 2022 report. Initially, we revisit the investment plans from our last report and establish a baseline for evaluating the new filings. Next, we discuss the specifics of the new capital plans submitted in 2023, and then describe how these plans have revised the projected spending forecasts.

The chapter is structured into four subsections: individual analyses for BGE, WGL, and CMD, followed by a summary section that synthesizes the findings into a statewide analysis of the revised updates in Maryland’s gas utility sector.

### 2.1. BGE Capital Plans and Spending Projections

The year 2023 marks the end of two multi-year BGE capital investment plans: its five-year STRIDE 2 plan that the PSC approved in June 2018; and the pilot three-year multi-year rate plan (“MRP”) that was approved in December 2020. Next, we summarize BGE’s budgets and the actual/anticipated spend for these plans; identify the company’s new capital plans for its MRP 2; and present updated projections on future capital spend based on the information in the new capital plans.

#### 2.1.1. BGE’s Previous Capital Plans: STRIDE 2 and MRP 1

BGE’s approved STRIDE 2 plan included two programs: Operation Pipeline and the Service Replacement Program. The Operation Pipeline program targets replacing all remaining cast iron and bare steel main and bare steel and copper services. For this program under STRIDE 2, the PSC approved the replacement

of 48 miles of main per year from 2019 through 2023 at a total five-year cost of approximately \$486 million. The Service Replacement Program addressed the replacement of all pre-1970 ¾” high-pressure steel services. For STRIDE 2, the PSC approved BGE acceleration of the replacement of these services at the pace the company said was needed to replace the remaining population by the end of 2020, at a budgeted cost of \$85 million. In total, the budget of BGE’s approved STRIDE 2 plan was \$571 million.

BGE’s approved MRP 1 plan included a total of \$1.26 billion in gas capital investments from 2021-2023. After removing the \$489.7 million in STRIDE costs included in the MRP 1 budget, BGE’s budget for non-STRIDE capital expenditures from 2021 to 2023 was \$771.2 million.

As of October 2023, actual costs for both STRIDE 2 and the MRP 1 are available through the end of 2022, and more recent estimates on 2023 spending are available from the 2023 capital project lists submitted by BGE in 2022. This updated information shows that

BGE is on track to spend \$804 million (141%) of the \$571 million in planned STRIDE 2 costs, and \$1.32 billion (104%) of the \$1.26 billion in planned MRP 1 costs.

The data shows that BGE will exceed its budgeted costs for both STRIDE 2 and MRP 1. Therefore, when considering the new investment plans BGE has presented in 2023, the proposed budget should be viewed effectively to be expenditure floors, rather than limits on what will be spent.

### 2.1.2. BGE's New MRP 2 Gas Capital Plans from CN 9692

BGE submitted a request for approval of its second three-year MRP in CN 9692. The plan includes a total capital budget of \$1.89 billion. This marks a \$620 million or 50% increase in the overall gas capital budget from BGE's MRP 1 to MRP 2.

As for STRIDE, the company established in the MRP 2 filing that it does not intend to submit a third five-year STRIDE plan for 2024 to 2029. Instead, BGE stated in the MRP 2 filing its intent to recover its STRIDE investment activities under the MRP 2 base rates from 2024 to 2026 in place of the STRIDE surcharge mechanism. The budget to continue the company's STRIDE replacement activities in the MRP 2 is \$459.3 million over three years. Because the replacements pursued through these projects are the same work BGE addressed through its STRIDE program, all updated 2023 projections in this report treat the work under these activities as the continuation of STRIDE investments.

### 2.1.3. Updated BGE Capital Projections

In its MRP 2 filing, BGE updated its capital projections for BGE's future STRIDE capital investments and

non-STRIDE capital investments. These updates and the results are described below. Note that these updates rely on the information presented in BGE's CN 9692 filings, which have not yet been approved by the Commission. At the time this report was prepared, the Commission's final determination on BGE's MRP 2 is not expected until December 2023.

### Updated STRIDE Projections

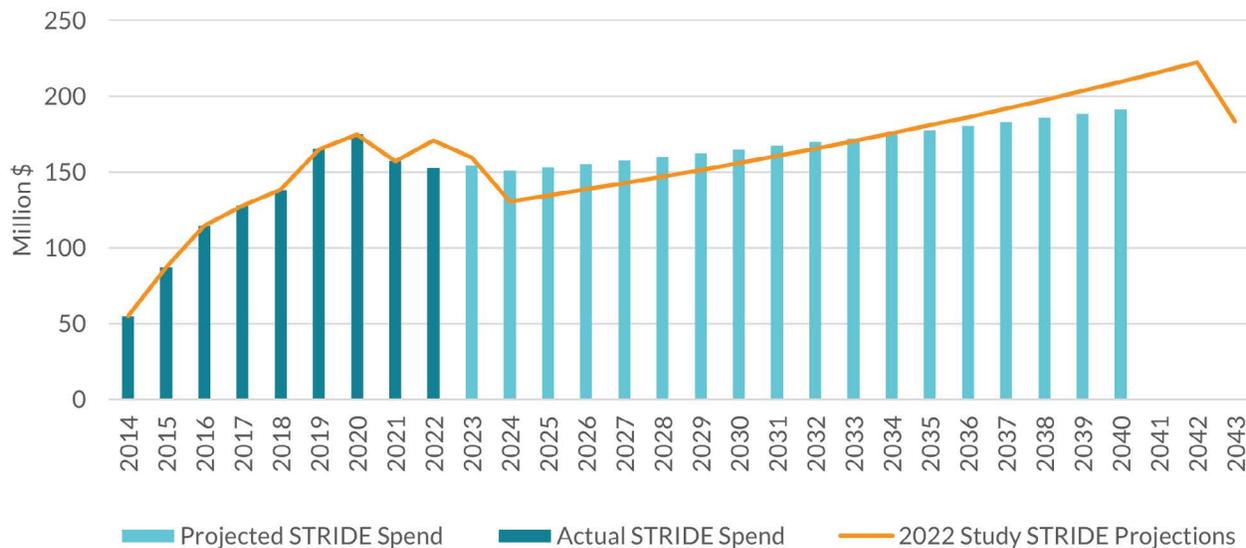
Projections for STRIDE expenditures in the 2022 Gas Spending Study relied on the remaining two years of budgeted costs for STRIDE 2 that were presented in the first MRP and then assumed that the 48 miles of main replaced each year under STRIDE 2 was continued from 2024 up until all bare steel and cast iron main would be replaced in 2043—when only 38.2 miles would need to be addressed.<sup>6</sup> Annual STRIDE costs were estimated by increasing the 2023 STRIDE budgeted cost per mile (\$2.63 million / mile) by three percent each year—the same assumption BGE used in its STRIDE 2 plan—and multiplying by the assumed annual replacement miles.

For the updated 2023 projections, we used the same approach but revised the assumptions based on the new plan information provided by BGE in CN 9692. These changes include the following:

- Annual mains replaced per year were increased from 48 miles to 53 miles per year to match the company's plans to replace 53 miles per year under the STRIDE activities in the MRP 2.
- BGE's STRIDE replacement activities end in 2040 instead of 2043. This change is due to the faster replacement rate that achieves full replacement of bare steel and cast iron mains three years earlier.
- Budgeted costs for STRIDE replacement expenditures from 2024 to 2026 are the same as those presented in the MRP 2 filing.

<sup>6</sup> This plan used a modified version of the projections that BGE presented for its accelerated STRIDE 2 plan in response to DR OPC 1-4 in CN 9468 that adjusts the number of miles replaced down from BGE's projections to the STRIDE 2 approved level of 48 miles per year.

Figure 2.1: BGE STRIDE Actual / Updated Projected Expenditures



- After 2026, the annual STRIDE expenditures estimated using the replacement cost per mile for the 2026 budget (\$2,930,000/mile of main) increased by 1.5 percent per year. The 1.5 percent annual growth is the same rate of change in replacement cost per mile for the STRIDE replacements in MRP 2 program years 2025 to 2026.

The updated projections for BGE’s STRIDE investments are presented in the figure below, which highlights the earlier end to the STRIDE investment activities.

**Updated Non-STRIDE Projections**

In the 2022 Gas Spending Study to project BGE’s non-STRIDE costs, we used the planned capital budgets in the MRP 1 for 2022 and 2023, net of the budget for STRIDE activities. Then, for the post-MRP 1 period (2024-2100), the non-STRIDE capital expenditures were set at the average of the non-STRIDE gas capital expenditures in the MRP 1 for 2021 to 2023. This amounted to \$263.26 million per year.

We used the same approach to update the non-STRIDE projections with new information from BGE’s MRP 2 filing. For 2024 through 2026, we used the net budgets for non-STRIDE projects proposed for the MRP 2. The total of the three-year budget for non-STRIDE capital expenditures is \$1.42 billion. We assumed the average of this non-STRIDE budget for the three years as the level of non-STRIDE investments from 2027 to 2100: \$473.4 million. This amount is approximately 80 percent higher than the non-STRIDE spending projection in the 2022 study, representing a substantial shift in resources toward investments outside of STRIDE. Table 2.1 presents the derivation of the non-STRIDE capital investment assumption that is used to determine the average annual in the BGE capital projections.

The updated amount for non-STRIDE project spending is approximately 80 percent higher than the projection in the 2022 study.

Table 2.1: BGE Non-STRIDE Investment Projections

| Line | Description                            | Source          | Projection             |
|------|----------------------------------------|-----------------|------------------------|
| 1    | MRP Capital Budgets (2024-2026)        | CN 9692, MRP 2  | \$1,879.5 million      |
| 2    | STRIDE Capital Budgets (2024-2026)     | CN 9692, MRP 2  | \$459.3 million        |
| 3    | Non-STRIDE Plant Additions (2024-2026) | Line 1 – Line 2 | \$1,420.2 million      |
| 4    | Average Non-STRIDE Additions           | Line 3 / 3      | <b>\$473.4 million</b> |

### Combined Updated Capital Projections

The combined investment projections for BGE, starting after the MRP 2 in 2026, represent the updated STRIDE projections through 2040 plus the base level of non-STRIDE additions of \$473.4 million that is maintained over time.

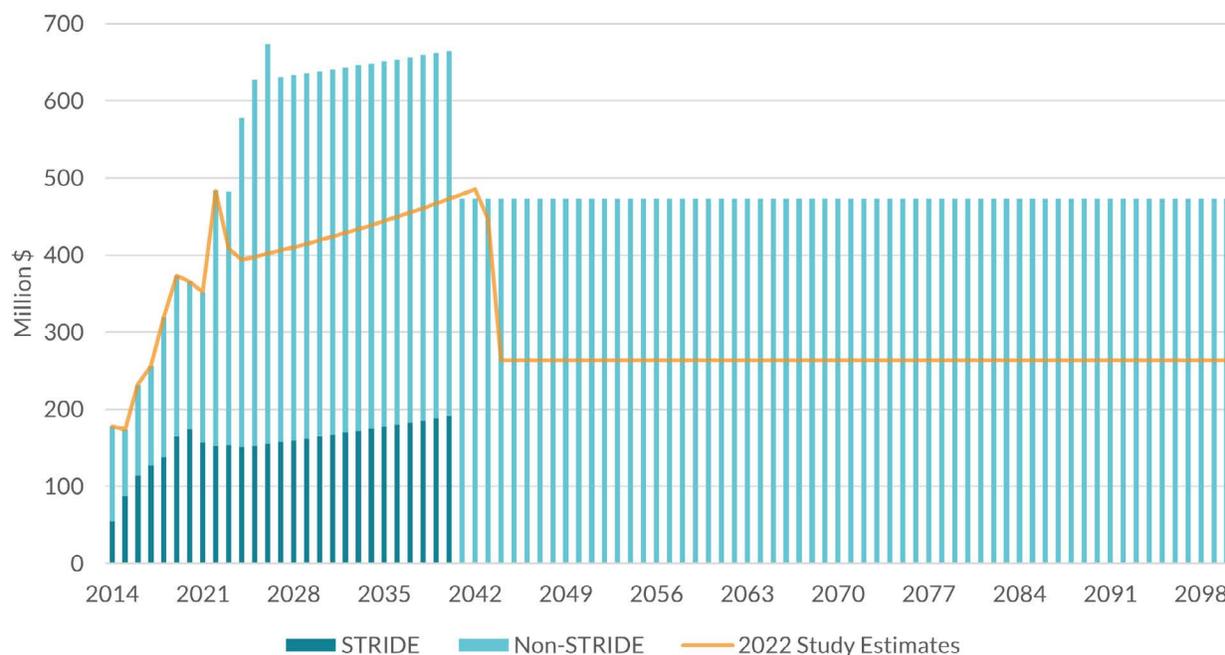
Figure 2.2 shows the results of the revised capital investment projections for BGE through 2100 (bars) versus the previous projected expenditure path from the 2022 Gas Spending Study (line). Most evident is the substantial increase in non-STRIDE spending proposed in the MRP 2 gas capital plans that result

in the non-STRIDE spending portion of our capital projections doubling from prior assumptions.

## 2.2. WGL Capital Plans and Spending Projections

WGL’s current five-year STRIDE 2 plan ends in 2023. In this subsection, we summarize WGL’s budgets and the actual or anticipated spend for the STRIDE 2 plan, identify the company’s new STRIDE 3 plans presented for approval in CN 9708, and present updated projections on future capital spend based on the information in the STRIDE 3 plan.

Figure 2.2: BGE Capital Investment Actuals / Projections



### 2.2.1. WGL's Previous Capital Plan: STRIDE 2

The WGL STRIDE 2 program ending in 2023 includes five distribution and five transmission programs. These programs include:

- Distribution Program 1: a service-only replacement program split into components by material: bare and/or unprotected wrapped steel (1A); copper (1B); and pre-1982 plastic (1C);
- Distribution Program 2: bare and/or targeted unprotected wrapped steel main and affected services;
- Distribution Program 3: vintage mechanically coupled ("VMC") steel main, affected services, and independent services;
- Distribution Program 4: cast iron main and affected services;
- Distribution Program 5: a multi-asset program with three sub-categories: meter build-ups and risers (5A); shallow distribution main (5B); and steel gauge lines (5C);
- Transmission Program 1: U.S. Department of Transportation (DOT) Transmission and High-Pressure Pipe Replacement;
- Transmission Program 2: Remote Control Valve Installation;
- Transmission Program 3: DOT Transmission and High-Pressure Block Valve Replacement;
- Transmission Program 4: DOT Transmission and High-Pressure Valve Riser Replacement; and
- Transmission Program 5: Replacement of Components of DOT Transmission and High-Pressure Pipes to Enable the Use of In-line Inspection ("ILI") Tools.

The PSC approved \$350.5 million for WGL's STRIDE 2 five-year budget plan across the ten programs.<sup>7</sup> Among the replacement activities WGL identified that would be completed over the course of the five-year period—from 2019 through 2023—was the replacement of an average of 24 miles of main per year, or a combined five-year total of 120 miles.<sup>8</sup>

As of October 2023, actual costs for WGL's STRIDE 2 activities are available through the end of 2022, and more recent estimates on 2023 spending are available from the 2023 STRIDE mid-year status report submitted in July 2023. This updated information shows that WGL is on track to spend \$375.1 million (107%) of the \$350.5 million budget approved in the STRIDE 2 plan.<sup>9</sup>

While the seven-percent budget overrun may appear relatively minor, WGL will be 107 percent over budget for only partial completion of the distribution replacement work included in the Commission-approved STRIDE 2 plan. If WGL completes all its ongoing 2023 main replacement projects, it will have only replaced 82.7 miles, or 69 percent, of the 120 miles in the approved plan. OPC's expert witness in WGL's ongoing STRIDE 3 case estimates that the cost for WGL to fully complete its proposed scope of STRIDE 2 replacements will be approximately \$529 million—151 percent of the \$350.5 million approved five-year budget.<sup>10</sup>

The uncompleted STRIDE 2 replacements only delay costs until later years and prolong the company's STRIDE plans. The corresponding impact of WGL's inability to complete both its STRIDE 1 and STRIDE 2 replacement work is evident in the company's updated long-term STRIDE timeline provided in its STRIDE 3 filing, described next.

<sup>7</sup> Direct Testimony of WGL Witness Wayne Jacas in CN 9708 at page 6, line 17.

<sup>8</sup> Exhibit WAJ-1: WGL's STRIDE 2 Distribution Program Application in CN 9486 at page 12.

<sup>9</sup> Table 2, Errata Direct Testimony of OPC Witness Larkin-Connolly in CN 9708 at page 17.

<sup>10</sup> Errata Direct Testimony of OPC Witness Larkin-Connolly in CN 9708 at page 18, line 11.

### 2.2.2. WGL's STRIDE 3 Plan Submitted in CN 9708

WGL's STRIDE 3 plan for 2024 through 2028 proposes to continue the identical set of five distribution and transmission programs in the STRIDE 2 plan. The one change in the overall STRIDE program design for STRIDE 3 is the addition of Distribution Program 6: low pressure main and services, which would be used to carry out the replacement of 58.6 of the remaining 63.5 miles of mains and associated services on the company's Maryland distribution system that still operates at low-pressure.<sup>11</sup> The 58.6 miles of mains targeted for replacement are made of materials technically already included under the existing distribution main replacement projects for bare/unprotected steel and cast iron.<sup>12</sup> This new program is proposed as part of a change in how WGL prioritizes replacement of low-pressure systems.

The company identifies that over the 2024 through 2028 STRIDE 3 period it plans to:

- Replace 79.6 miles of main through Distribution Programs 2, 3, 4, 5B, and 6;
- Replace 4,061 services and transfer another 3,051 services as part of the main replacement work to be carried out under Distribution Programs 2, 3, 4, 5B, and 6;
- Replace 6,879 services (independent of a main project) through Programs 1A, 1B, 1C, and 3;
- Complete meter buildups at 10,000 addresses, with 75 addresses to also include service riser replacements as part of this work, through Distribution Program 5A;
- Replace 425 steel gauge lines through Distribution Program 5C;

- Complete partial replacement of three (3) transmission pipeline strips through Transmission Program 1;
- Install six (6) new high-pressure rotary control valves (RCVs) through Transmission Program 2;
- Replace one (1) DOT transmission and high-pressure block valve through Transmission Program 3;
- Replace 12 valve risers on WGL's high-pressure transmission system through Transmission Program 4; and
- Replace components on portions of one (1) transmission strip to enable ILI through Transmission Program 5.<sup>13</sup>

These planned distribution replacements for STRIDE 3 are well below what was included in WGL's approved STRIDE 2 plan. The 79.6 planned main replacement miles for STRIDE 3 are approximately 40 miles (33%) below what it had proposed to complete under STRIDE 2, and the reduced main replacement means that services are reduced by 4,429 (24%) below the STRIDE 2 plan. Replacement plans for the other distribution assets under Distribution Programs 5A and 5C represent an even more significant drop in planned units. For Program 5A, the number of addresses where meter buildup and service riser work would be implemented over the course of STRIDE 3 is 16,500 addresses (62%) below the STRIDE 2 plan, and for Program 5C the steel gauge lines planned for replacement are 500 (54%) below the replacements planned for STRIDE 2.

The reduction in planned replacements has not led to a reduction in the five-year STRIDE budget. WGL's proposed budget for STRIDE 3 is \$495 million: \$89.4 million for 2024; \$92.9 million for 2025; \$99.7 million for 2026; \$102.8 million for 2027; and \$110.2 million

<sup>11</sup> WGL Response to OPC DR 1-5, Att. 3 in CN 9708, attached to Direct Testimony of OPC witness Larkin-Connolly.

<sup>12</sup> *Id.*

<sup>13</sup> WGL's distribution targets are provided in Table 4 located in Exhibit WAJ-1 in CN 9708 at page 10.

for 2028.<sup>14</sup> This budget includes \$483.1 million in planned distribution program spend and \$11.9 million in transmission program spend.<sup>15</sup>

Another change for STRIDE 3 is clarification from WGL that the long-term duration of the distribution programs will be extended. When the STRIDE 1 plans were submitted in 2013 and 2014, the company presented them as part of an overall long-term plan to replace all targeted assets over 22 years, with individual program lengths ranging from 10 to 22 years.<sup>16</sup> The company extended the duration of some of the individual programs in the STRIDE 2 plan but kept the total long-term STRIDE duration to 22 years.<sup>17</sup> In its STRIDE 3 filing, as shown in Table 2.2, the 22-year plan for the WGL STRIDE distribution programs has now been extended another eight years. WGL's STRIDE program is now a 30-year replacement plan that is planned to end in 2043 instead of 2035.

### 2.2.3. Updated WGL Capital Projections

We updated the capital projections for WGL's future STRIDE capital investments and non-STRIDE capital investments based on the STRIDE 3 plan and new information from WGL's annual reports on capital expenditures and plant additions made in 2021 and 2022. These updates and the results are described below. As with BGE, these updates rely on the information presented in WGL's STRIDE 3 plan filed in CN 9708 that has not, as of October 2023, been approved by the Commission.

#### Updated STRIDE Projections

Projections for future STRIDE expenditures in the 2022 Gas Spending Study began with the remaining two years of 2022 and 2023 budgeted costs for STRIDE 2. Because the company had not provided a long-term plan for its future STRIDE replacements, other than the remaining years in each program,

Table 2.2: STRIDE 3 Distribution Programs and Updated Program Durations

| Program | Asset Category                                                             | STRIDE 1 Original Duration | OLD End Year | STRIDE 3 Remaining Duration | New End Year | Program Delay |
|---------|----------------------------------------------------------------------------|----------------------------|--------------|-----------------------------|--------------|---------------|
| 1A      | Bare and/or Unprotected Wrapped Steel Services                             | 10 years                   | 2023         | 7 years                     | 2030         | +7 years      |
| 1B      | Targeted Copper Services                                                   | 10 years                   | 2023         | 10 years                    | 2033         | +10 years     |
| 1C      | Targeted Pre-1975 Plastic Services                                         | 10 years                   | 2023         | 10 years                    | 2033         | +10 years     |
| 2       | Bare and/or Targeted Unprotected Wrapped Steel Main and Affected Services  | 14 years                   | 2027         | 15 years                    | 2038         | +11 years     |
| 3       | Vintage Mechanically Coupled Steel Main and Services and Affected Services | 22 years                   | 2035         | 20 years                    | 2043         | +8 years      |
| 4       | Cast Iron Main and Affected Services                                       | 14 years                   | 2027         | 10 years                    | 2033         | +6 years      |
| 5A      | Meter Build ups and Service Risers                                         | 15 years                   | 2029         | 10 years                    | 2033         | +4 years      |
| 5B      | Shallow Main                                                               | 15 years                   | 2029         | 10 years                    | 2033         | +4 years      |
| 5C      | 5C Steel Gauge Lines                                                       | 15 years                   | 2029         | 10 years                    | 2033         | +4 years      |
| 6       | Low Pressure Main and Services                                             | 14 years                   | 2027         | 15 years                    | 2038         | +11 years     |

<sup>14</sup> Table 4, Exhibit WAJ-1 in CN 9708 at page 10.

<sup>15</sup> *Id.*

<sup>16</sup> WGL Response to OPC DR 1-5 Att. 1 at 1; Att. 2 at 1.

<sup>17</sup> WGL Response to OPC DR 1-5 Att. 3, WGL's STRIDE 2 filing at 2.

we used a simplified method to estimate the future distribution program spend after 2024. The budget for each distribution program is projected to increase by three percent each year until the program's final year. For example, the budget for Program 2 was \$37.08 million in 2023 and was estimated to be \$38.2 million in 2024 (3 percent higher). The budget for each year was increased accordingly until 2027, the previous planned end year of the program. An additional 14.7 percent was added to the 2022 to 2100 STRIDE distribution budgets to account for WGL's record under STRIDE 2 wherein its unit costs over the first three years of STRIDE 2 were shown to be on average 14.7 percent over the unit costs underlying the STRIDE 2 plan.

For the updated 2023 STRIDE capital projections, we took a different approach to account for new cost details, the change in program durations, and the estimated main replacement rate that would be needed to complete the expected mains remaining to be completed at the end of STRIDE 3 in 2028. This added information allows for a more accurate estimate of the budget required to complete the replacement WGL intends to complete over the next 20 years than the previous simplified approach. The new approach to the STRIDE capital spending projections can be summarized as follows:

- Proposed STRIDE 3 budgets for distribution and transmission as submitted in the CN 9708 initial filing are used for the assumed STRIDE capital spend in the five-year period from 2024 through 2028.
- Annual STRIDE spend for distribution main replacements and affected services under Distribution Programs 2, 3, 4, 5C, and 6 for 2029 to 2043 were estimated by first assuming annual main replacements of 25.5 miles for STRIDE 4

(2029-2033); 28 miles for STRIDE 5 (2034-2038); and 32 miles for STRIDE 6 (2039-2043).<sup>18</sup> Next, the annual replacement cost per mile for these replacements from 2029 to 2100 was assumed to be the \$4,313,823 budgeted cost per mile for main replacement in the final year of STRIDE 3 (2028), grown by six percent each year.<sup>19</sup> Finally, the spend for each year was derived by multiplying the assumed miles replaced by the annual replacement unit costs.

- STRIDE spend for the independent service programs (1A, 1B, 1C, and 3) and other distribution programs (5A and 5C) from 2029 through 2043 was set at the budget for each program in 2028, the final year of STRIDE 3, grown by six percent each year until the year that WGL has indicated the program will end.
- No transmission budgets are included after 2028 because WGL has not identified its plans for future STRIDE transmission investments beyond 2028.

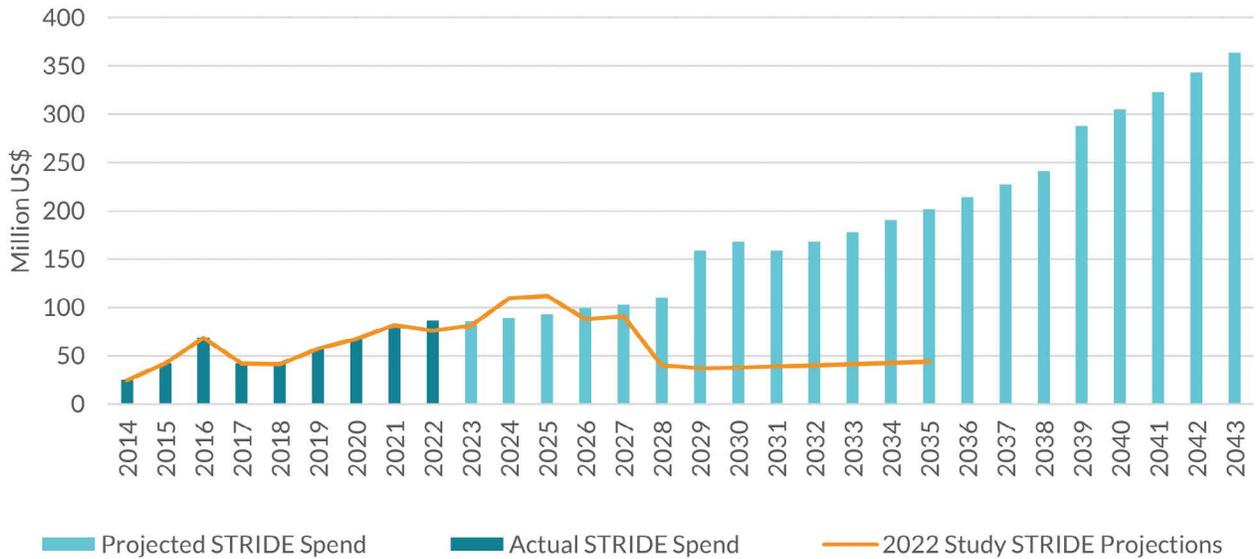
Based on this approach, we estimate the total expenditures for WGL's remaining STRIDE activities after 2023 to be \$4.0 billion. This is more than \$3 billion, or five times the \$720 million projected after 2023 we had estimated in the previous study based on WGL's previous STRIDE plans and unit cost estimates. As shown in Figure 2.3 below, the new STRIDE expenditure path reflects the increased replacement costs and extended duration of STRIDE.

The total expenditures for WGL's remaining STRIDE activities after 2023 are projected to be \$4.0 billion, more than five times last year's projection.

<sup>18</sup> These replacement rates were developed based on an estimate that at the end of STRIDE 3 the remaining miles of main to be replaced over the final 15 planned years for WGL's STRIDE program would be approximately 427.5 miles, which would require an average of 28.5 miles replaced per year.

<sup>19</sup> This six-percent growth rate in unit costs is the same rate used by WGL in its STRIDE 3 plan.

Figure 2.3: WGL STRIDE Actual (2014-2022) / Updated Projected Expenditures (2023-2043)



### Updated Non-STRIDE Projections

We used a different approach to calculate WGL’s non-STRIDE projections in the 2022 Gas Spending Study than for BGE because WGL was not operating under an MRP. WGL’s non-STRIDE capital expenditures for 2021 through 2100 were estimated by first aggregating the annual plant additions listed for WGL in the three most recent annual reports available (2018-2020): \$1.2 billion. This three-year plant-additions amount was for plant additions across all WGL’s service areas (MD, VA, and DC) because the company submits a combined annual report to the Maryland PSC. To arrive at the MD portion of the three-year plant additions, the jurisdictional plant allocator for Maryland of 38.2%—presented in WGL’s 2020 base rate filing, CN 9651—was applied to arrive at an estimated total of \$473.1 million in plant additions in Maryland from 2018 through 2020. STRIDE spending of \$166.0 million for the years 2018 to 2020 was then subtracted from this amount to arrive at an estimated \$307.5 million in non-STRIDE plant additions for the three-year period. The assumed non-STRIDE capital expenditures for 2021 through 2100 was then the

three-year average of this amount, or \$102.5 million per year.

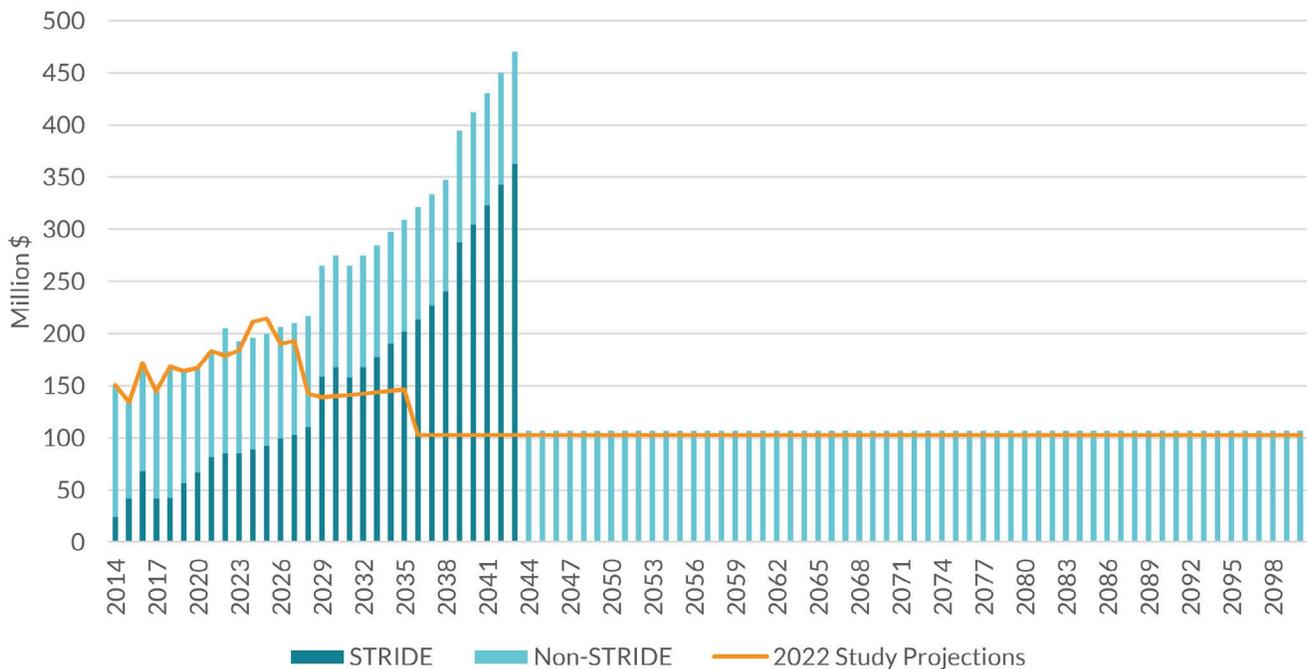
The 2023 updated non-STRIDE projections reflect the most recent three years of information in WGL’s 2020 through 2022 annual reports and the jurisdictional plant allocation factor included in the cost-of-service study submitted in WGL’s 2023 base rate case (CN 9704). Beyond these informational updates, we made one modification to the prior approach to derive the WGL non-STRIDE expenditure assumption—the addition of the net change in capital work in progress (CWIP) to the three-year plant-additions amount. This change intends to capture the fact that amounts on annual STRIDE spend do not necessarily represent only plants in-service but also include CWIP not yet placed into service. Excluding these amounts from the previous projections likely underestimated WGL’s non-STRIDE spend.

Table 2.3 presents the derivation of the non-STRIDE capital investment assumptions that are used in the updated WGL capital projections for 2023 to 2100.

Table 2.3: WGL Non-STRIDE Investment Projections

| Line | Description                         | Source              | Projection             |
|------|-------------------------------------|---------------------|------------------------|
| 1    | WGL Plant Additions (2020-2022)     | Annual Reports      | \$1,363 million        |
| 2    | WGL Net Change in CWIP (2020-2022)  | Annual Reports      | \$92.20 million        |
| 3    | Total WGL Plant Additions + CWIP    | Line 1 + Line 2     | \$1,455 million        |
| 4    | MD Plant Allocator                  | CN 9704, Exh. RET-6 | 38.2%                  |
| 5    | Estimated MD Capital Expenditures   | Line 3 * Line 4     | \$566.1 million        |
| 6    | STRIDE Expenditures (2020-2022)     | STRIDE filings      | \$235.1 million        |
| 7    | Non-STRIDE Expenditures (2020-2022) | Line 5 – Line 6     | \$307.5                |
| 8    | Average Non-STRIDE Expenditures     | Line 7 / 3          | <b>\$107.0 million</b> |

Figure 2.4: WGL Capital Investment Actual / Projections



### Combined Updated Capital Projections

The combined investment projections for WGL, starting in 2023, represent the STRIDE projections through 2043 plus a base level of \$107.0 million that we maintain for the entire evaluation period. Figure 2.4 shows the results of our capital investment projections for WGL through 2100.

### 2.3. CMD Capital Plans and Spending Projections

Like we did for WGL, we updated the capital projections for CMD's future STRIDE capital investment and non-STRIDE capital investments based on the STRIDE 3 plan and new information from CMD's annual reports on capital expenditures and plant additions made in 2021 and 2022. These

updates and the results are described below. These CMD updates rely on the information presented in the company’s STRIDE 3 plan filed in CN 9709, which has not, as of October 2023, been approved by the Commission.

### 2.3.1. CMD’s Previous Capital Plan: STRIDE 2

The STRIDE 2 plan that CMD is operating under in 2023 remains relatively the same as the original STRIDE 1 plan approved by the PSC in CN 9332. CMD’s approved first five-year plan included an average replacement of 7.56 miles of bare steel, wrought-iron, or cast-iron main per year with a goal to complete replacement of all mains made of these materials by the end of 2026. The STRIDE 2 plan that was agreed upon through a settlement agreement in CN 9479 stipulated that CMD would replace eight miles per year of the same three main materials from 2019 through 2023 for a budgeted cost of \$84.6 million over the five years.

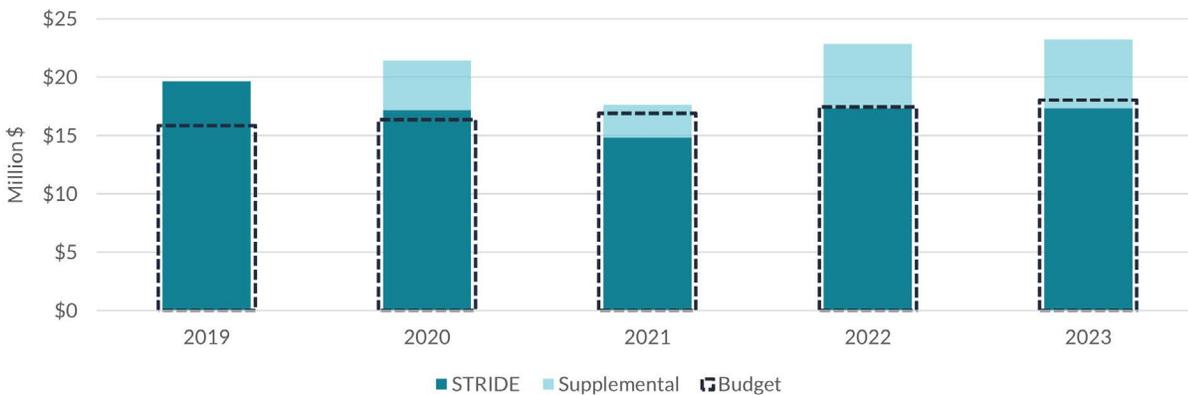
CMD completed its replacement of all remaining cast-and wrought-iron mains on CMD’s distribution system in 2020. This milestone meant that the remaining three years of STRIDE 2 targeted replacement of only eight miles of bare steel main per year. Over the remaining three years CMD was unable to put together lists of projects that both included eight miles of bare steel main and fit within the agreed upon budget for the year because the remaining

bare steel on the system is located more sporadically and in between other older main materials, such as older plastic and coated steel pipes, which were not prioritized for replacement through STRIDE. The company replaces these other materials at the same time it replaces the STRIDE-targeted bare steel. The replacement of these other materials adds to the overall cost to replace each mile of bare steel. For CMD to both achieve the mileage replacement and incur costs close to the budget agreed to in the settlement agreement, the company has put forward supplemental non-STRIDE replacement projects from 2020 through 2023 to address any gap between the eight miles target and the miles of bare steel main prioritized for replacement through STRIDE.

Although the company has not pursued collection of the cost of these supplemental projects through the STRIDE surcharge mechanism, these additional STRIDE-related investment costs are still contributing to higher base rates when the company comes in for its annual base rate filing. For this reason, it is appropriate to include these supplemental costs when evaluating CMD’s STRIDE 2 results. Evident in Figure 2.5 below is that these supplemental projects have resulted in CMD incurring costs well above the amounts budgeted to replace the eight miles of main per year.

As of October 2023, actual costs for CMD’s STRIDE 2 activities are available through the end of 2022, and more recent estimates on 2023 spend are available

Figure 2.5: CMD STRIDE 2 Budget vs. Actual Annual Expenditures



from the 2023 STRIDE project list submitted in November 2022.<sup>20</sup> This updated information shows that CMD is on track to spend \$86.4 million on STRIDE projects and another \$18.5 million on supplemental projects. In total, CMD will have spent \$104.3 million, or 124 percent, of the \$84.6 million budget to replace the 40 miles of bare steel or cast iron mains over the five-year STRIDE 2 period.

### 2.3.2. CMD's New STRIDE 3 Plan from CN 9709

CMD's STRIDE 3 plan for 2024 through 2028 proposes to continue the replacement of the remaining bare steel mains prioritized in the STRIDE 2 plan, along with the replacement of two new priority main materials: coated steel mains installed prior to 1971 ("pre-1971 coated steel") and plastic mains installed prior to 1982 ("pre-1982 plastic"). CMD has proposed to replace a combined eight miles per year of bare steel main and the two new material types—40 miles total—from 2024 through 2028 at a five-year budget of \$101.7 million.

The proposed addition of pre-1971 coated steel and pre-1982 plastic has implications on the duration of not only STRIDE 3 but CMD's long-term STRIDE plans. We expect that CMD will have approximately 17.4 miles of bare steel mains remaining at the end of 2023. That means that at the eight-mile-per-year replacement rate, the company is currently on track to complete the replacement of bare steel main by the end of 2026. In other words, if only bare steel was included in the new plan, then the duration of STRIDE 3 proposed would be at most three years long.

Replacing the entire population of pre-1971 coated steel and pre-1982 plastic mains would add another 17 years to the company's STRIDE plans.

Including additional priority material types enables CMD to add two more years to the STRIDE 3 plan—because there are enough priority mains to replace to fill up an entire five-year plan of replacement projects.

CMD is unclear on its long-term plans for replacement of pre-1971 coated steel and pre-1982 plastic after STRIDE 3. The company does not specify if the intention is to replace every single mile of pre-1971 coated steel and pre-1982 plastic or if it will only target replacement where there is evidence that the mains are performing poorly. At the current pace of eight miles per year, replacing the entire population of pre-1971 coated steel and pre-1982 plastic mains would add another 17 years to the company's STRIDE plans, extending CMD's STRIDE program from a single three-year STRIDE 3 plan up to potentially four five-year plans.<sup>21</sup>

### 2.3.3. Updated CMD Capital Projections

The capital projections for CMD's future STRIDE capital investment and non-STRIDE capital investments were updated based on the STRIDE 3 plan and other new information from the 2021 and 2022 annual reports. These updates and the results are described below. These updates rely on the

<sup>20</sup> Annual reconciliation filings: ML#s 229077 (2019); 234156 (2020); 239568 (2021); and 301824 (2022). The 2023 Project List is ML#300394.

<sup>21</sup> In 2023, Columbia said it will replace a combined 5.6 miles of pre-1971 coated steel and pre-1982 plastic through the replacement projects it is pursuing under the STRIDE mechanism (Att. C to Columbia's 2023 STRIDE Project List, ML 242872) and 0.62 miles through the projects on its supplemental STRIDE list (Supplemental STRIDE 2023 Project List, ML 300745). That puts the company on track to have 141.48 miles in pre-1981 coated steel and pre-1982 plastic remaining by the end of 2023. The 141.48 pre-1972 coated steel and pre-1982 plastic plus the 17.4 miles of remaining bare steel at the start of 2024 equals a combined 158.9 miles of main that would take 19.9 years (158.9 miles / 8 miles per year) to complete at a rate of eight miles per year. The additional 17 years is found by removing the three years remaining in CMD's original STRIDE completion timeline that ends in 2026 (19.9 years – 3 years = 16.9 years).

information presented in CMD’s STRIDE 3 plan filed in CN 9709, which has not, as of October 2023, been approved by the Commission.

### Updated STRIDE Projections

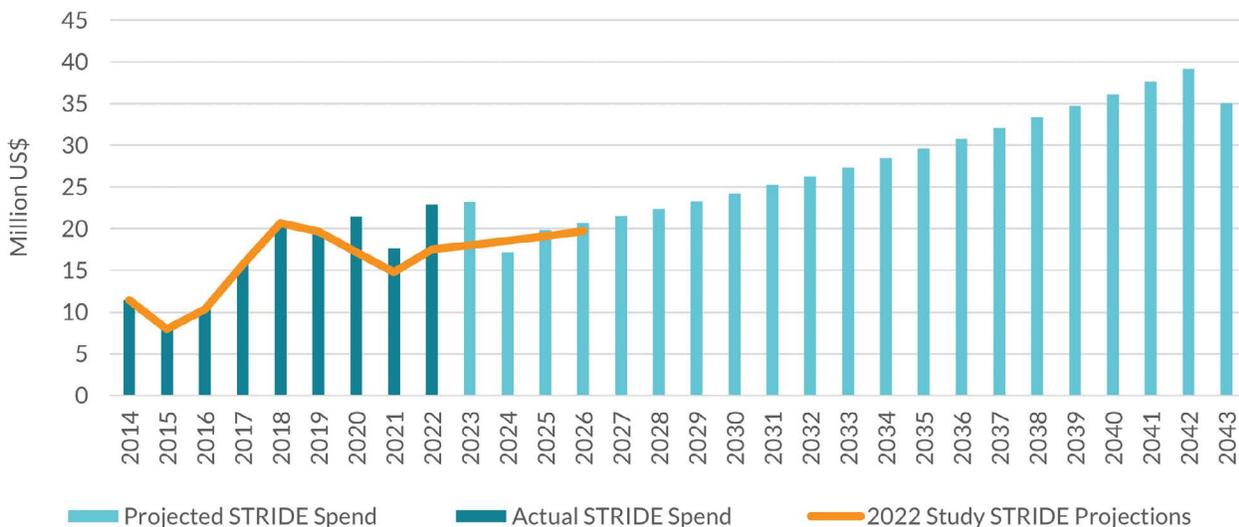
The projections for CMD’s STRIDE spend in the 2022 Gas Spending Report relied on the budgeted costs for the remaining two years of STRIDE 2 (2022 and 2023) and then assumed that there would only be 17.5 miles of bare steel main replacement from 2024 through 2026. We assumed that a total of 24 miles would need to be replaced over this three-year period. The additional 6.5 miles in other mains included were meant to represent the high number of other main materials the company had shown it would need to complete the removal of the remaining bare steel mains on its system. The expenditure on these replacements were estimated by using the same unit rate for 2023 in the company’s STRIDE 2 plan grown by three percent per year.

The proposed STRIDE 3 budgets submitted by CMD in the CN 9709 initial filing are used for the assumed STRIDE capital spend from 2024 through 2028. To model the company’s future STRIDE investment activities after 2028, we adjusted the approach used in the previous study to reflect the new priority pipe

and unit costs in CMD’s STRIDE 3 plan. While the company has not stated its intention explicitly, we assume the goal for these new asset categories is to eventually replace all pre-1971 coated steel and pre-1982 plastic mains. We assume that the company would continue the same replacement pace of eight miles per year in 2029 and keep that pace until all remaining miles of pre-1971 coated steel and pre-1982 plastic are fully replaced in 2043. When estimating the costs of these annual replacements, we again use the unit costs from the final year of the existing five-year STRIDE plan—the unit cost of \$2.8 million per mile for 2028—and grow it each year by 4.07 percent—the same growth rate CMD used between 2027 and 2028 in the STRIDE 3 budget.

Based on this approach, we estimate that the total expenditures for CMD’s remaining STRIDE activities after 2023 will be \$565.2 million. This estimated STRIDE spending is \$507.8 million greater than the \$57.4 million the 2022 study projected CMD would spend on STRIDE after 2023. As shown in Figure 2.6 below, the new STRIDE expenditure path reflects the additional 17 years of new STRIDE investments that will occur if CMD is permitted to fully replace the population of the two new asset categories starting in STRIDE 3.

Figure 2.6: CMD STRIDE Actual (2014-2022) / Updated Projected Expenditures (2023-2043)



### Updated Non-STRIDE Projections

We used the same approach for CMD’s non-STRIDE projections in the 2022 Gas Spending Study as for WGL, wherein the non-STRIDE investments were assumed to be the three-year average plant additions identified in the company’s annual reports for 2018 through 2020 minus the three-year average of the company’s STRIDE expenditures for this same period. The one difference for CMD is that we have exact numbers for CMD plant additions because CMD’s annual report only covers its Maryland jurisdiction. This approach results in an assumed \$10.7 million per

year in non-STRIDE capital expenditures from 2022 through 2100 in the 2022 Gas Spending Study.

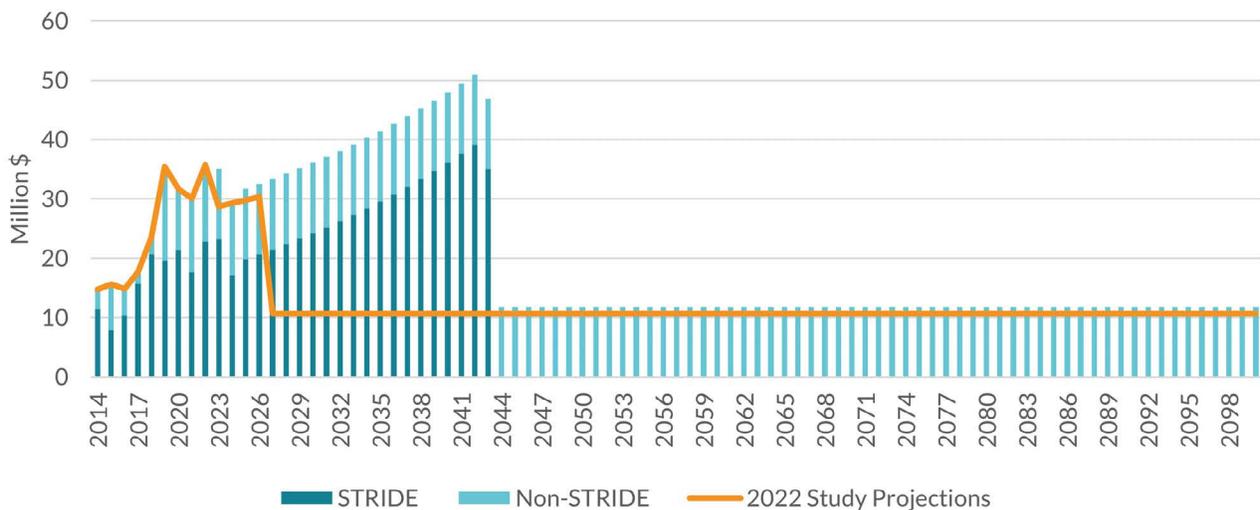
We based the updated non-STRIDE projections for CMD in 2023 on the most recent three years of information in the 2020 through 2022 annual reports. The revised assumptions for CMD also incorporate an adjustment for net CWIP and another adjustment for completed construction not classified (CCNC)<sup>22</sup> to better reflect the three-year average annual expenditures on capital investments.

Table 2.4 presents the derivation of the non-STRIDE capital investment assumptions that are used in the updated CMD capital projections for 2023 to 2100.

Table 2.4: CMD Non-STRIDE Investment Projections

| Line | Description                         | Source          | Projection             |
|------|-------------------------------------|-----------------|------------------------|
| 1    | CMD Plant Additions (2020-2022)     | Annual Reports  | \$87.26 million        |
| 2    | CMD Net Change in CCNC (2020-2022)  | Annual Reports  | \$10.28 million        |
| 3    | CMD Net Change in CWIP (2020-2022)  | Annual Reports  | -\$0.05 million        |
| 4    | Total CMD Plant Additions + CWIP    | Line 1 + Line 2 | \$97.49 million        |
| 5    | STRIDE Expenditures (2020-2022)     | STRIDE filings  | \$61.95 million        |
| 6    | Non-STRIDE Expenditures (2020-2022) | Line 4 – Line 5 | \$35.54 million        |
| 7    | Average Non-STRIDE Expenditures     | Line 6 / 3      | <b>\$11.85 million</b> |

Figure 2.7: CMD Capital Investment Actual / Projections



22 The adjustment for CCNC was not included for WGL because this item is not included in its annual reports.

## Combined Updated Capital Projections

The combined investment projections for CMD, starting in 2023, represent the STRIDE projections through 2043 plus a base level of \$11.85 million that we maintain for the entire evaluation period. Figure 2.7 shows the results of our capital investment projections for CMD through 2100.

## 2.4. Combined Investment Projections

The updated projections in STRIDE and non-STRIDE capital expenditures for each of the companies result in substantial increase from our previous

study. Below, the updated combined spend for the evaluation time period (2024-2100) and the changes in projected statewide spending are presented for STRIDE investments and cumulative gas infrastructure investments.

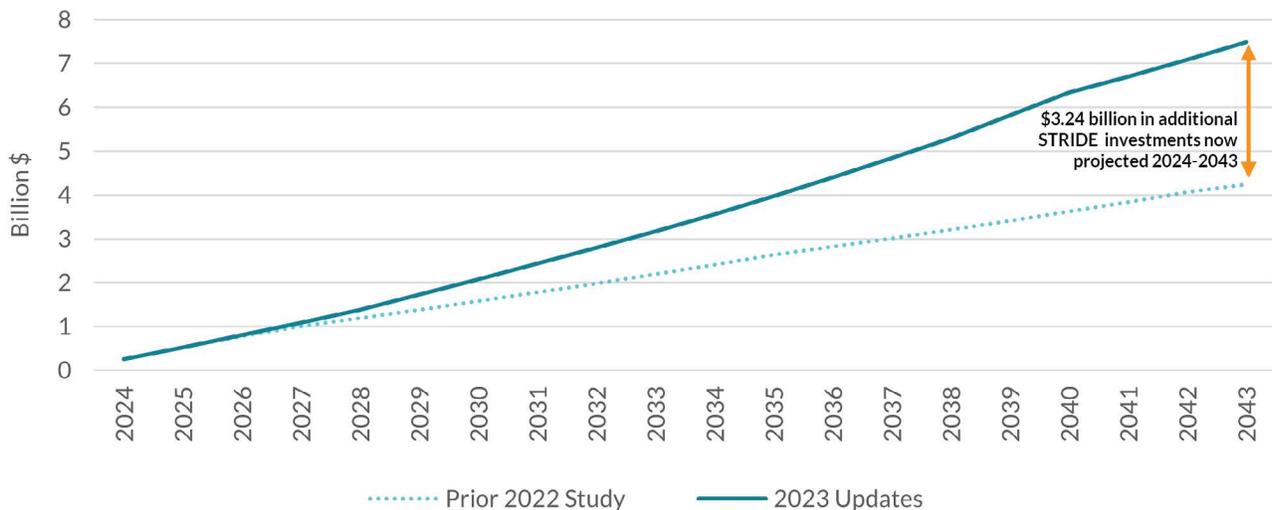
### 2.4.1. Combined STRIDE Investments

Table 2.5 below summarizes the updated projections for all-time STRIDE expenditures for BGE, WGL, and CMD. Then Figure 2.8 shows how the cumulative trajectory of STRIDE spending from 2024 to 2100 changed.

Table 2.5: All-Time STRIDE Investment Projections

|                                                | BGE              | WGL              | CMD            |                            |
|------------------------------------------------|------------------|------------------|----------------|----------------------------|
| Total spent STRIDE I (actual 2014-2018)        | \$522.7          | \$220.8          | \$66.2         |                            |
| Actual/Anticipated spend STRIDE II (2019-2023) | \$803.9          | \$377.9          | \$104.8        |                            |
| Estimated STRIDE III (2024-2028) budget        | \$776.9          | \$495.2          | \$101.7        |                            |
| Estimated STRIDE IV (2029-2033) budget         | \$836.7          | \$830.7          | \$126.4        |                            |
| Estimated STRIDE V (2034-2038) budget          | \$901.4          | \$1,074.7        | \$154.3        |                            |
| Estimated STRIDE VI (2039-2043) budget         | \$379.8          | \$1,622.7        | \$182.7        |                            |
| <b>All-Time Total STRIDE I – VI</b>            | <b>\$4,221.4</b> | <b>\$4,622.0</b> | <b>\$736.2</b> | <b>THREE-COMPANY TOTAL</b> |
| <b>Future Total = STRIDE III to STRIDE VI</b>  | <b>\$2,894.8</b> | <b>\$4,023.3</b> | <b>\$565.1</b> | <b>\$7,483.2</b>           |

Figure 2.8: Changes in STRIDE Expenditure Projections



### 2.4.2. Combined All Capital Investments

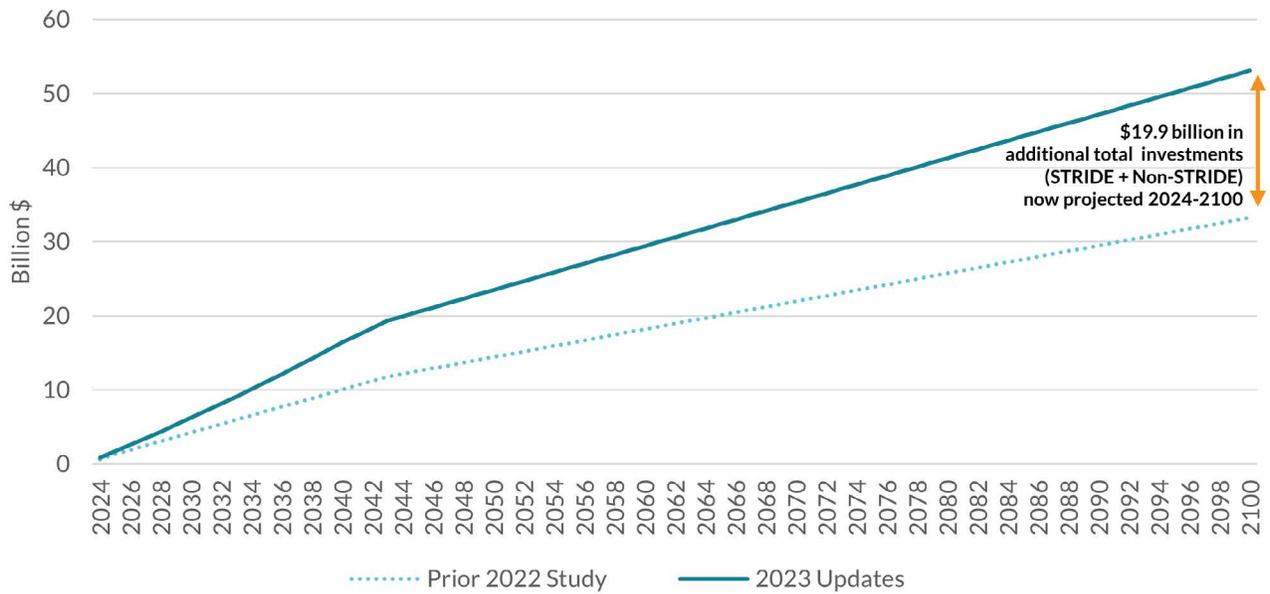
Table 2.6 summarizes the updated projections for capital expenditures for BGE, WGL, and CMD

from 2024 to 2100. Then Figure 2.9 shows how the cumulative trajectory of capital spending from 2024 to 2100 has changed.

Table 2.6: Total Maryland Capital Investment Projections (\$ million)

| Utility | STRIDE (2024-2043) | Non-STRIDE (2024-2043) | Non-STRIDE (2044-2100) | Total (2024-2100) | Changes from 2022 Gas Spending Study |       |
|---------|--------------------|------------------------|------------------------|-------------------|--------------------------------------|-------|
|         |                    |                        |                        |                   | (\$)                                 | (%)   |
| BGE     | \$2,895            | \$9,468                | \$26,984               | \$39,347          | + \$15,612                           | ↑ 66% |
| WGL     | \$4,023            | \$2,140                | \$6,099                | \$12,262          | + \$3,648                            | ↑ 42% |
| CMD     | \$565              | \$237                  | \$675                  | \$1,477           | + \$596                              | ↑ 68% |
| Total   | \$7,483            | \$11,845               | \$33,758               | \$53,086          | + \$19,856                           | ↑ 60% |

Figure 2.9: Changes in Total Capital Expenditure Projections



## SECTION THREE

# UPDATED REVENUE REQUIREMENT AND BILL IMPACT FORECASTS

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This section provides updated revenue requirement and customer bill forecasts that incorporate the revised capital projections for each company, as well as other information from each company's 2023 base rate filing.

### 3.1. Methodology and Revised Assumptions

For the 2022 Gas Spending Study, we developed a revenue requirement model to understand the impact of the capital investment projections on customer rates. The model used capital projections and other assumptions to estimate the capital-related components of the annual revenue requirement for the forecast period. The revenue requirement for the capital investment components included:

- Return on rate base
- Depreciation
- Property taxes
- Gross-up for income taxes, bad debt, franchise taxes, and PSC assessment

We used a variation of this model to forecast the revenue requirements for the updated capital projections developed in Section 2. There is one notable change in the 2023 model. The approach to estimated plant retirements was revised to improve the steps for removal of a retired plant from both the plant in service and accumulated depreciation

balances. The result of this change is evident in the more gradual decline in revenue requirements over time without the drops in revenue requirements seen in the 2022 results.

To calculate the annual revenue requirement in future years, based on publicly available information, we developed certain assumptions on depreciation, retirements, cost of capital, property taxes, and the gross-conversion factor. The updated 2023 projections rely on the most recent information available for these same assumptions presented in the company's 2023 base rate filings. Table 3.1 presents the 2023 versions of the assumptions used to calculate the capital-related revenue requirements for each company.

As stated in the 2022 Gas Spending Study, we want to emphasize again the updated projections and revenue requirement analysis presented in this report are solely intended to show the general impact that current capital investment trends will have on future revenue requirements and therefore utility customer rates. We do not attempt to identify the precise future revenue requirements that will be developed through the regulatory process.

Table 3.1: CAPEX Revenue Requirement Assumptions

|                                                    | BGE                | WGL                  | CMD                |
|----------------------------------------------------|--------------------|----------------------|--------------------|
| <b>Depreciation Rates</b>                          | 2.23% (mains)      | 1.65% (distribution) | 2.00% (STRIDE)     |
|                                                    | 3.52% (services)   | 1.91% (transmission) | 2.31% (non-STRIDE) |
|                                                    | 2.92% (non-STRIDE) | 1.88% (non-STRIDE)   |                    |
| <b>Retirement Rate<br/>(% of plant in service)</b> | -0.91%             | -0.91%               | -0.91%             |
| <b>Weighted Average Cost<br/>of Capital</b>        | 2024: 7.39%        | 7.73%                | 7.20%              |
|                                                    | 2025: 7.45%        |                      |                    |
|                                                    | 2026+: 7.56%       |                      |                    |
| <b>Gross-Conversion Factor</b>                     | 70.56%             | 70.36%               | 70.36%             |
| <b>Property Tax Rate</b>                           | 1.37%              | 1.12%                | 1.40%              |
| <b>Tax Treatment of STRIDE<br/>Plant Additions</b> | Tax Repairs: 80%   | Tax Repairs: 80%     | Tax Repairs: 80%   |
|                                                    | MACRS: 20%         | MACRS: 20%           | MACRS: 20%         |

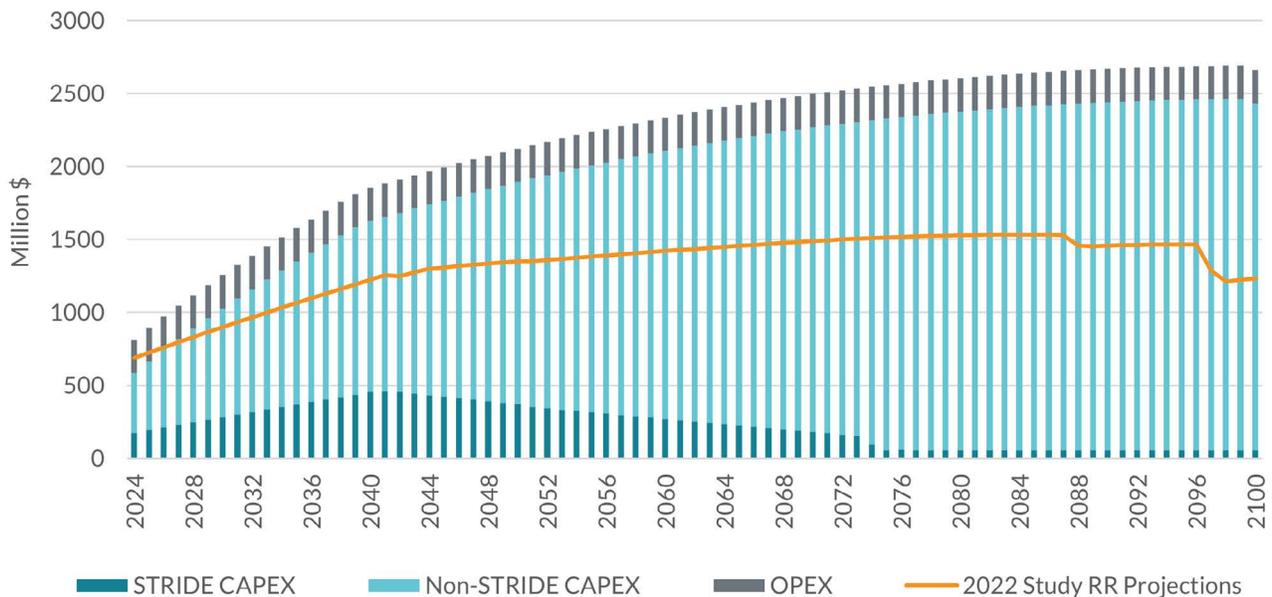
## 3.2. Annual Revenue Requirement Projections

### 3.2.1. BGE

BGE’s updated revenue requirement projections for 2024 through 2100 (bars) are presented in Figure 3.1, illustrating that BGE’s updated capital plans

presented in its MRP 2 have substantially increased its expected future revenue requirements. BGE’s average revenue requirement from 2024 to 2100 (\$2.19 billion) in the updated projections is 66 percent greater than the average (\$1.32 billion) for this same period in the 2022 study. This increase is driven by the significant jump in non-STRIDE spending that had not been captured in the previous study.

Figure 3.1: BGE Revenue Requirement Projections (2024-2100)



### 3.2.2. WGL

WGL’s updated revenue requirement projections for 2024 through 2100 (bars) are presented in Figure 3.2, showing that WGL’s STRIDE 3 plans have increased its expected future revenue requirements by 30 percent compared to the 2022 projections. The greatest change in the projection for WGL is in the 2040s, when the full impact of the completed STRIDE investments is reflected in the revenue requirement. This results in a 60 percent increase in the amount to be collected from customers compared to what had previously been projected for this same decade.

The increases in revenue requirements related to the STRIDE investments is due to a combination of the higher unit costs and updated information on the company’s long-term STRIDE plans, as well as our revised approach to projecting WGL’s future STRIDE costs that better captures the full replacement work the company continues to state it will complete over this period.

### 3.2.3. CMD

CMD’s updated revenue requirement projections for 2024 through 2100 (bars) are presented in Figure 3.3. The percentage increases in revenue requirements projected for CMD are the highest among the three utilities, as the average revenue requirement for CMD from 2024 to 2100 (\$102.57 billion) in the updated 2023 projections is 70 percent greater than the average (\$60 million) for this same period in the 2022 study. These results are not surprising, considering that in the previous study, CMD’s STRIDE investments were anticipated to end in 2026. CMD’s proposal to add two new classes of main to be replaced through STRIDE in the company’s STRIDE 3 plan has added an additional 17 years of investments that were not previously considered.

Updates to long-term STRIDE plans increase WGL’s expected future revenue requirements by 30 percent and CMD’s by 70 percent compared to the 2022 projections.

Figure 3.2: WGL Revenue Requirement Projections (2024-2100)

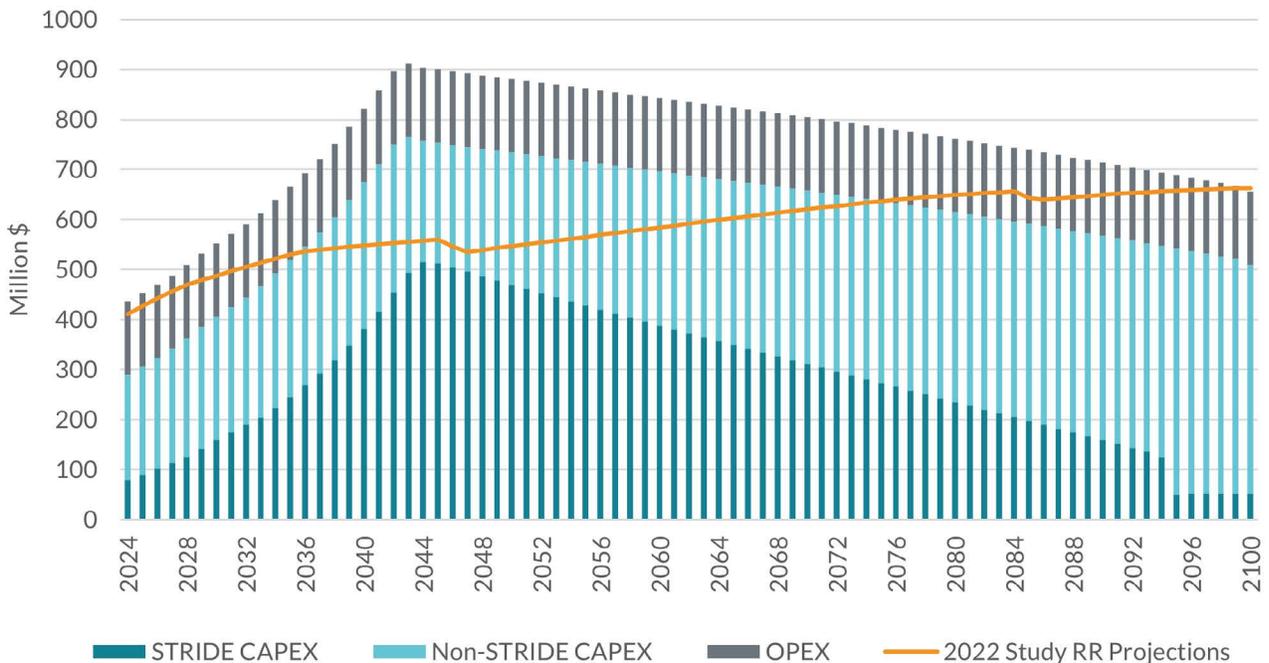
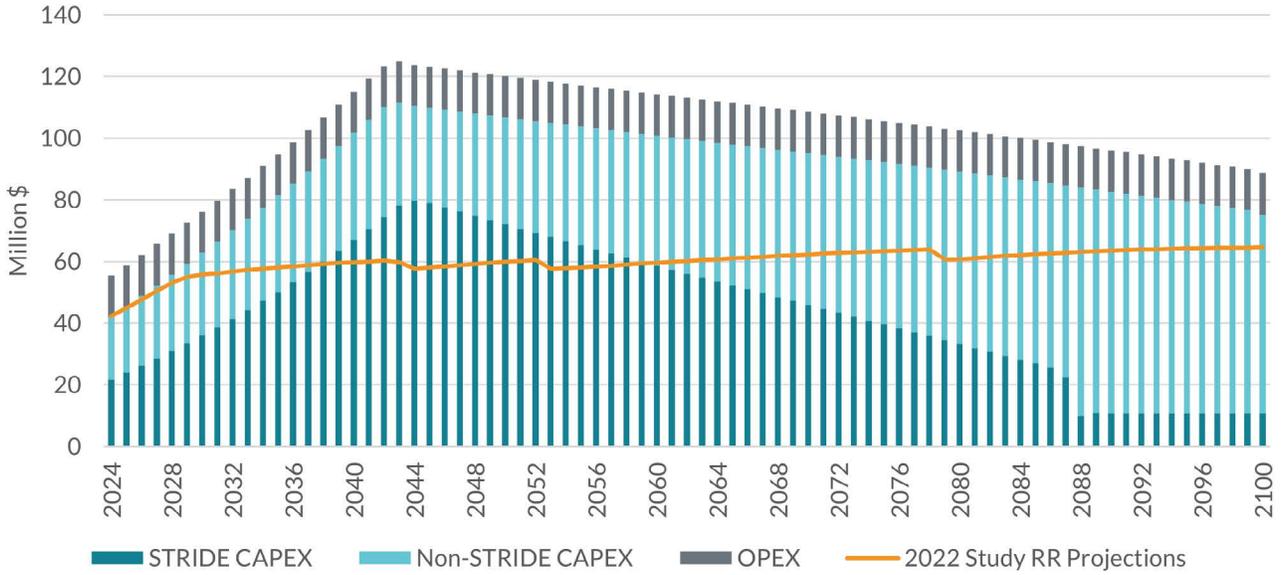


Figure 3.3: CMD Revenue Requirement Projections (2024-2100)

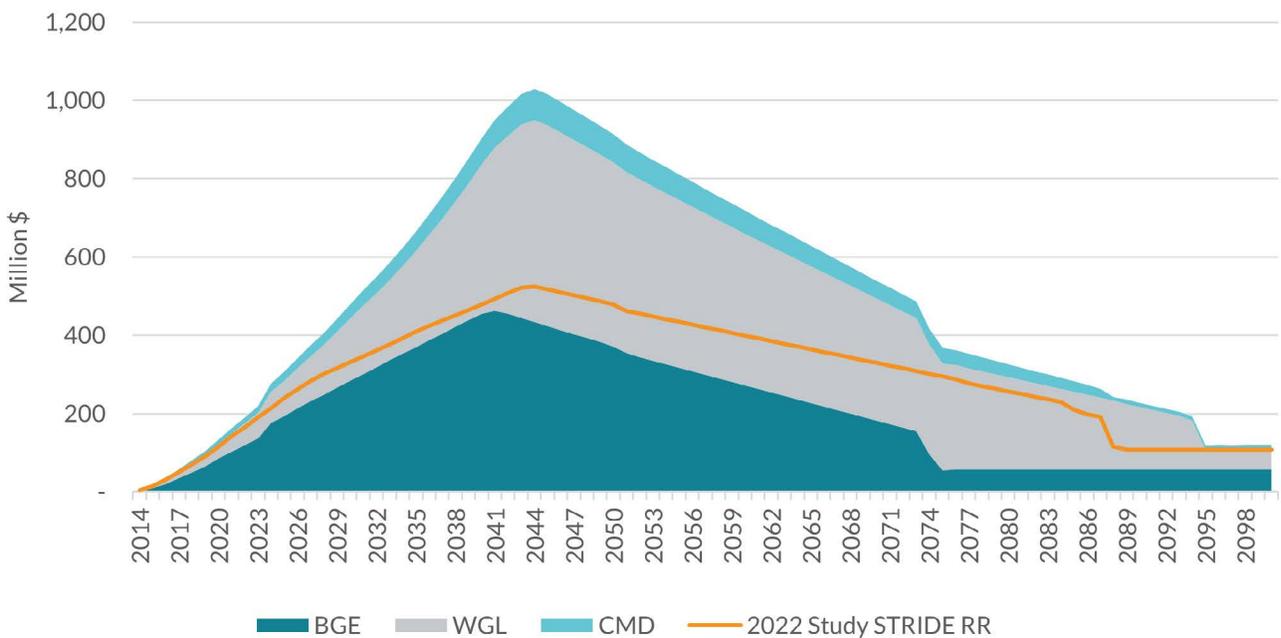


### 3.2.4. Combined Revenue Requirements for Maryland’s Three Largest Gas Utilities

To provide a picture of the statewide level of planned utility spending, the 2022 Gas Spending

Study provided figures that aggregate the projected revenue requirements of the three companies. We update two of these figures below.

Figure 3.4: STRIDE Revenue Requirements



### Total Customer CAPEX Payments

Overall, the projected capital-related revenue requirements that customers of BGE, WGL, and CMD would be expected to pay from 2024 through 2100 has increased by 60 percent from \$125 billion in the 2022 study to \$206 billion in the updated 2023 projection. Much of these payments will be for the \$20 billion in investments that are projected to be made in the first 22-year period from 2024 to 2045—meaning that 38 percent of spending is projected to take place in 28 percent of the forecast period. These \$20 billion in investments would be made over the same period the State has set a goal to reach net-zero emissions.

Figure 3.5 below illustrates that at this revised pace of investment, Maryland gas customers will be asked to spend \$41.5 billion from 2024 through 2045 to compensate the gas companies for their gas infrastructure spending: a \$14.3 billion increase over the \$27.2 billion in revenue requirements that customers were expected to pay for CAPEX from 2024 to 2045 in the 2022 study. Current capital

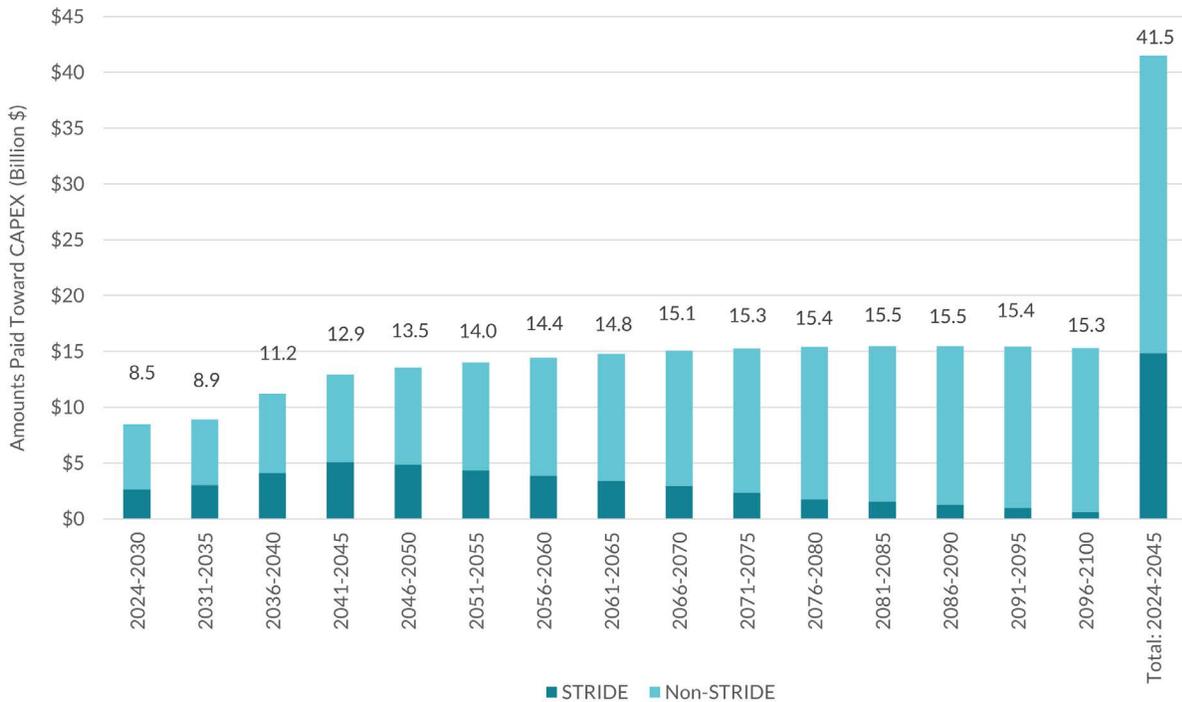
The projected capital-related revenue requirements that customers would be expected to pay increases by 60 percent from \$125 billion in the 2022 study to \$206 billion.

investment proposals from the three gas companies show an additional \$14 billion in payments from gas customers over a period when State policy suggests that investment should focus on zero-emission technologies. Section 4 compares the spending projects from this investment path to alternatives.

### 3.3. Rate Impacts

The revenue requirements forecasted in the previous subsection were used to estimate what the future winter bill would be for the typical residential customer at BGE, WGL, and CMD. The projected trajectory of residential bills from 2024 to 2100 and

Figure 3.5: Projected Gas Customer Payments Toward CAPEX (Billion \$), 2022-2100



the previous historical bills from 2014 to 2023 are provided for each company below.

*Importantly, these bill impacts assume that the gas companies do not experience a decline in gas consumption. With declines in their numbers of customers who decrease gas consumption, rates must increase to meet the utilities' revenue requirements. If gas consumption drops substantially, rates would increase substantially.*

### 3.3.1. BGE

The updated estimated winter bill for a BGE customer using 160 therms a month from 2024 to 2100 is presented in Figure 3.6. Our projections show that if BGE continues investing in capital at the proposed levels, a customer's typical winter bill will grow from an average of \$220 in 2021-2023 to \$450 by 2035 (a 104 percent increase) and \$580 by 2050 (a 63 percent

increase). These estimates assume commodity prices stay around the most recent five-year average. If gas prices go back up to the levels experienced in 2021-2022, then the typical residential customer's winter bill would increase by another \$56 per month.

### 3.3.2. WGL

The updated estimated winter bill for a WGL customer using 160 therms a month from 2024 to 2100 is presented in Figure 3.7. Our projections show that if WGL continues investing in capital at the proposed levels, a customer's typical winter bill will grow from an average of \$187 in 2021-2023 to \$268 by 2035 (a 43 percent increase) and \$333 by 2050 (a 78 percent increase). These estimates assume commodity prices stay around the most recent five-year average. If gas prices go back up to the levels experienced in 2021-2022, then the typical residential customer's winter bill would increase by another \$68 per month.

Figure 3.6: BGE Typical Winter Bill, 2014-2100

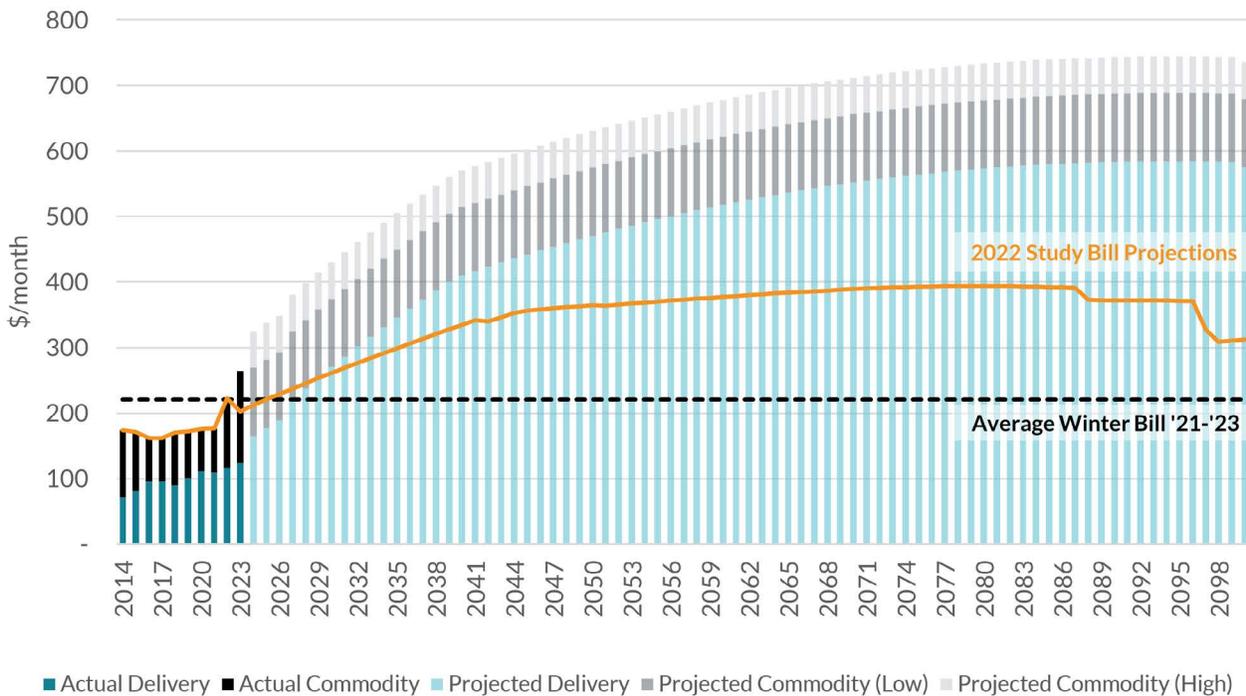
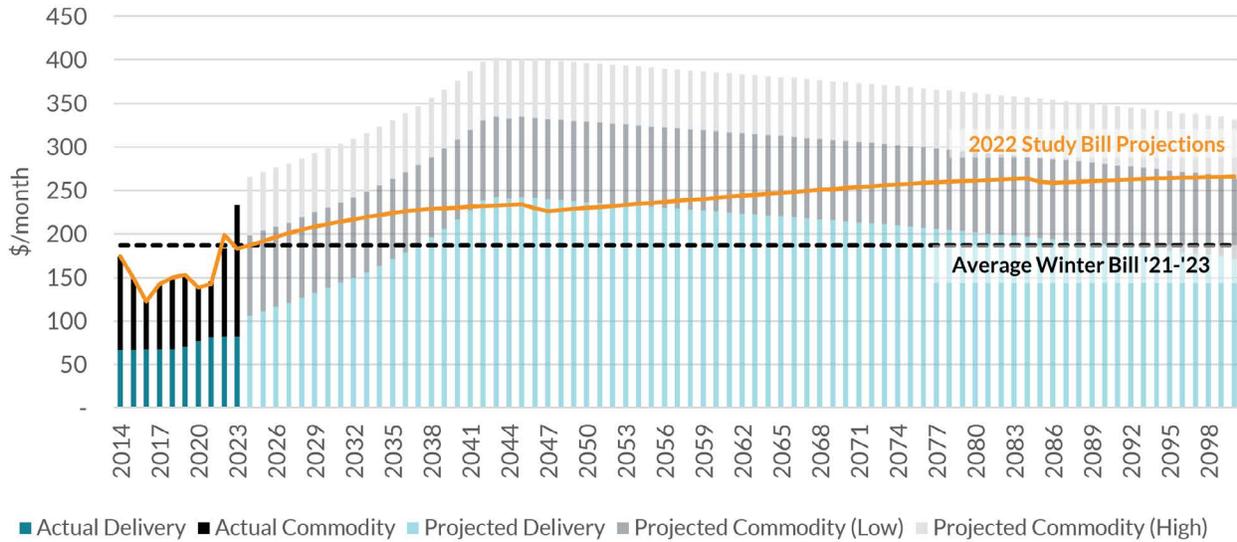


Figure 3.7: WGL Typical Winter Bill, 2014-2100

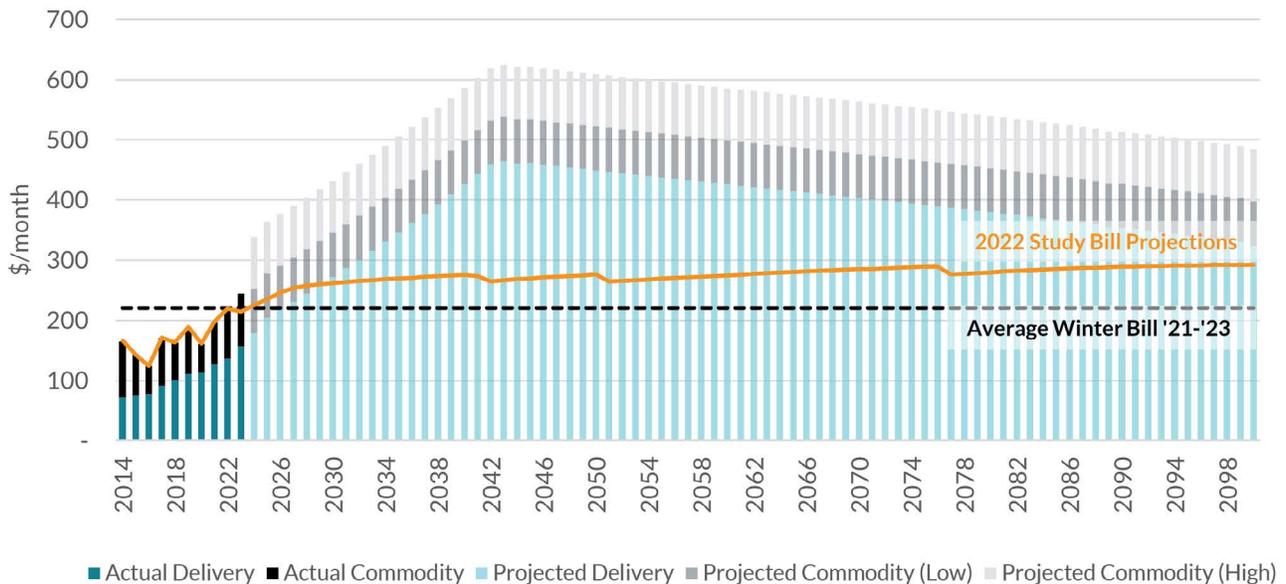


### 3.3.3. CMD

The updated estimated winter bill for a CMD customer using 160 therms a month from 2024 to 2100 is presented in Figure 3.8. Our projections show that if CMD continues investing in capital at the proposed levels, a customer’s typical winter bill will grow from

an average of \$221 in 2021-2023 to \$419 by 2035 (a 90 percent increase) and \$523 by 2050 (a 137 percent increase). These estimates assume commodity prices stay around the most recent five-year average. If gas prices go back up to the levels experienced in 2021-2022, then the typical residential customer’s winter bill would increase by another \$87 per month.

Figure 3.8: CMD Typical Winter Bill, 2014-2100



## SECTION FOUR

# ALTERNATIVE PATHWAYS

The forecasting approach relied on for this analysis is what forecasters might call a naïve method, where the last observed or known values are used to predict future outcomes. Put another way, the capital expenditure pathways presented are the status quo expenditure paths the companies are presently shown to be on. The trajectory of this status quo path is for BGE, WGL, and CMD to make \$53 billion in gas infrastructure investments in Maryland from 2024 through 2100. Inclusive of the utilities' pre-tax return on those investments, from just 2024 to 2045, Maryland gas customers will be asked to pay \$41.2 billion to compensate the gas companies for this gas infrastructure spending.

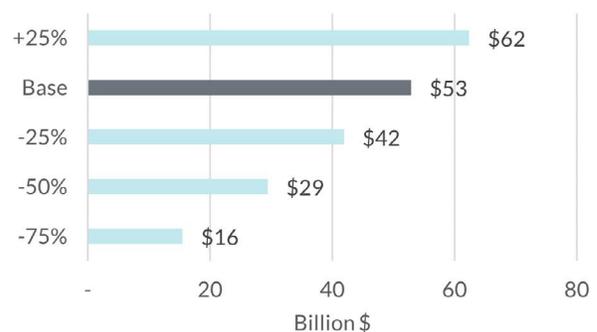
A relevant issue to consider when evaluating the reasonableness of \$53 billion in investments in gas infrastructure is that they would take place over a period when Maryland has goals to substantially reduce its greenhouse gas (GHG) emissions. In 2022, the General Assembly passed the Climate Solutions Now Act (CSNA), increasing the State's GHG emissions reduction goal to a 60 percent reduction by 2031 and requiring net-zero statewide GHG emissions by 2045.<sup>23</sup> The CSNA also declared the "intent of the General Assembly that the State move toward broader electrification of both existing buildings and new construction." These State policy goals suggest that the State's limited financial and construction capacity resources might be better used

for electrification or other solutions that support the State's net-zero goals.

These policy goals represent a challenge to the long-term viability of the natural gas industry, where there is a spectrum of possible futures. Based on the State's energy policy, it is fair to assume that the future of gas will not remain at the status quo, and gas consumption will decline.<sup>24</sup> This means that current investment approaches need to adapt and consider how reduced gas demand will affect future investment needs.

Figure 4.1 shows how the cumulative spend across the companies would be different if the entire projected spend for each company from 2024 through 2100 was increased or decreased proportionally.

Figure 4.1: Alternative Capital Expenditure Pathways, Cumulative Expenditures 2024-2100



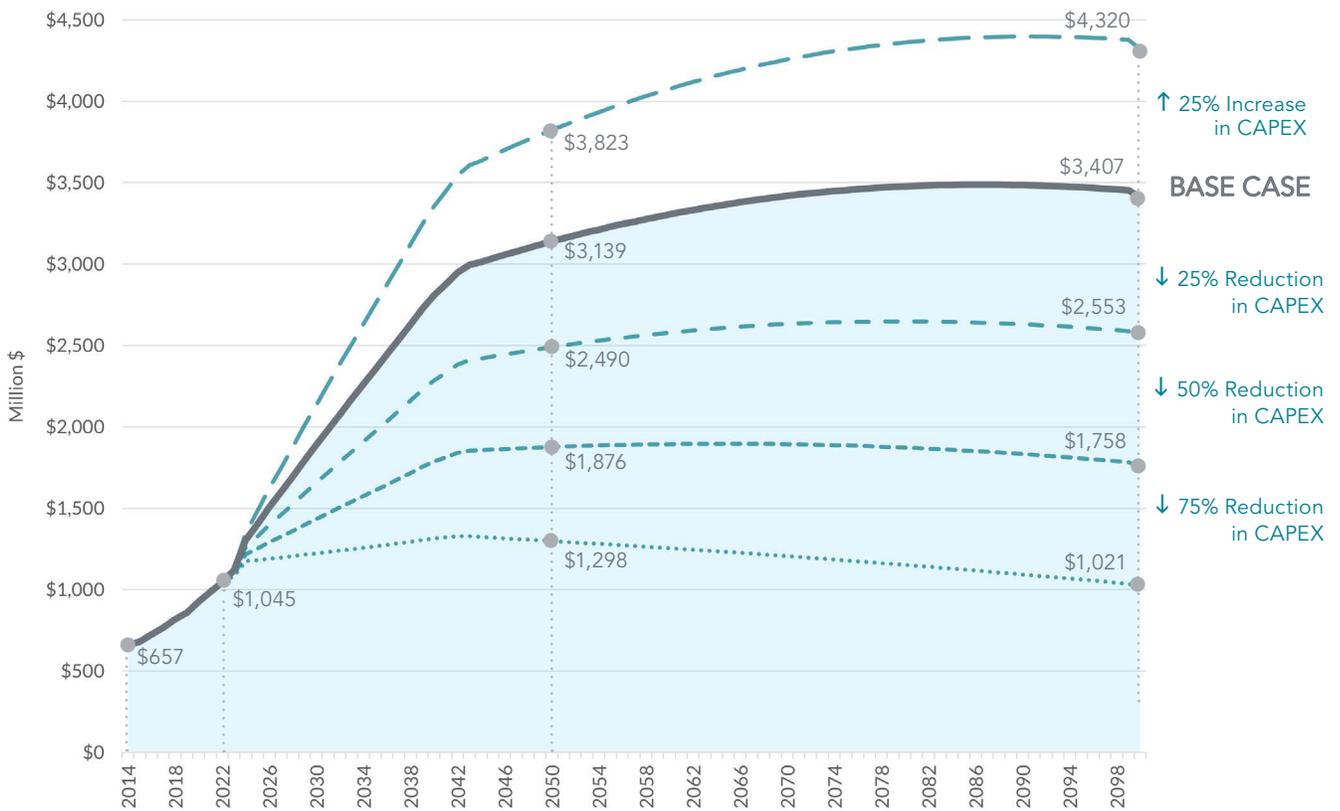
23 S.B. 528, 2022 Reg. Sess., at 29 (Md. 2022), <https://mgaleg.maryland.gov/mgawebsite/Legislation/Details/sb0528?ys=2022RS>.

24 OPC's November 2022 report, *Climate Policy for Maryland's Gas Utilities: Financial Implications*, further suggests that advances in electric appliance technologies will also be a factor contributing to declining gas consumption.

Figure 4.2 shows the changes in the future revenue requirements from moving to one of the alternative investment pathways, demonstrating that reductions in capital investments lower the revenue requirement that needs to be collected from gas customers.<sup>25</sup>

Reductions in capital investments lower the revenue requirement that needs to be collected from gas customers.

Figure 4.2: Alternative Combined Revenue Requirement Pathways



25 In OPC’s October 24, 2023, filing in CN 9707, slide 12 showing “Potential Avoided Customer Costs From Reduced Gas Utility Spending” has slightly different figures because it reflects avoided costs related to capital expenditures only, without accounting for operational costs.



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