

SECTION ONE

EXECUTIVE SUMMARY

Maryland’s Office of People’s Counsel (OPC) engaged DHInfrastructure to prepare various projections and analyses on the current trajectory of gas infrastructure investments and corresponding rate impacts of the projected level of investment at the State’s three largest gas distribution companies: Baltimore Gas and Electric (BGE), Washington Gas Light (WGL), and Columbia Gas of Maryland (CMD). Using conservative assumptions, the report’s findings show that a continuation of the utilities’ spending practices means significantly higher costs for gas delivery, resulting in higher bills for most Maryland residential customers.

This report discusses the approach and assumptions used to develop the projections, presents the results of the projections, and then includes a brief written analysis on the results. It also reports on recent historical trends in natural gas distribution and commodity rates based on actual data. Below we summarize the findings.

Maryland’s three largest gas companies are currently undertaking massive capital investment programs through STRIDE...

In 2013, the Maryland General Assembly enacted the Strategic Infrastructure Development and Enhancement (STRIDE) law, section 4-210 of the Public Utilities Article, *Annotated Code of Maryland* (section 4-210 or STRIDE statute). The STRIDE statute authorizes Maryland gas utility companies to file and the Public Service Commission to approve infrastructure investment plans and corresponding project cost-recovery schedules.

The statute requires that companies receive PSC approval of their STRIDE plans on five-year cycles. BGE, WGL, and CMD all requested and received approval for initial five-year plans in 2013 and are currently on their second five-year plans that run from 2019 to 2023. Table 1.1 below shows that the utilities complete their STRIDE plans on file with the PSC at different stages, with BGE’s extending to its sixth five-year plan running through 2043. This timeline indicates that for some Maryland utilities, STRIDE is still only in the early stages. Based on each of the three company’s STRIDE plans, we find that there is upward of \$4,764 million remaining to be invested through STRIDE alone over the next 20-plus years.

Table 1.1: STRIDE Investment Plans of Maryland's Three Largest Gas Utilities (million \$)

	BGE	WGL	CMD	
Total spent STRIDE I (actual 2014-2018)	\$522.73	\$218.50	\$66.19	
Actual/Authorized budget STRIDE II (2019-2023)	\$827.28	\$363.07	\$87.22	
Estimated STRIDE III (2024-2028) budget	\$693.39	\$439.44	\$57.38	
Estimated STRIDE IV (2029-2033) budget	\$803.83	\$194.82	\$0	
Estimated STRIDE V (2034-2038) budget	\$931.86	\$86.35	\$0	
Estimated STRIDE VI (2039-2043) budget	\$1,034.48	\$0	\$0	THREE-COMPANY TOTAL
All-time Total STRIDE I – VI	\$4,813.58	\$1,302.19	\$210.79	\$6,326 million
Future Total = Remaining STRIDE II + STRIDE III to STRIDE VI	\$3,793.70	\$877.71	\$92.94	\$4,764 million

Totals in figures and tables may not add up precisely due to rounding.

...and these companies will continue to make other investments outside of STRIDE well into the future.

Maryland gas utilities are also continuing to invest in other capital asset categories not covered by STRIDE. Our conservative estimate is that if the companies spend on non-STRIDE activities at current levels, there will be another \$29,749 million investments outside of STRIDE between 2022 and 2100. As shown in Table 1.2, the combined STRIDE and non-STRIDE investments are \$34,513 million.

Our conservative estimate is that if the companies spend on non-STRIDE activities at current levels, there will be **another \$29,749 million in investments outside of STRIDE** between 2022 and 2100.

Table 1.2: Maryland Gas Capital Expenditure (CAPEX) Investments, 2022-2100 (million \$)

	STRIDE (2022-2043)	Non-STRIDE (2022-2043)	Non-STRIDE (2044-2100)	Total
BGE	\$3,793.70	\$5,799.14	\$15,005.96	\$24,598.80
CMD	\$92.95	\$235.31	\$609.67	\$937.93
WGL	\$877.71	\$2,255.34	\$5,843.39	\$8,976.45
Total	\$4,764.36	\$8,289.79	\$21,459.02	\$34,513.18

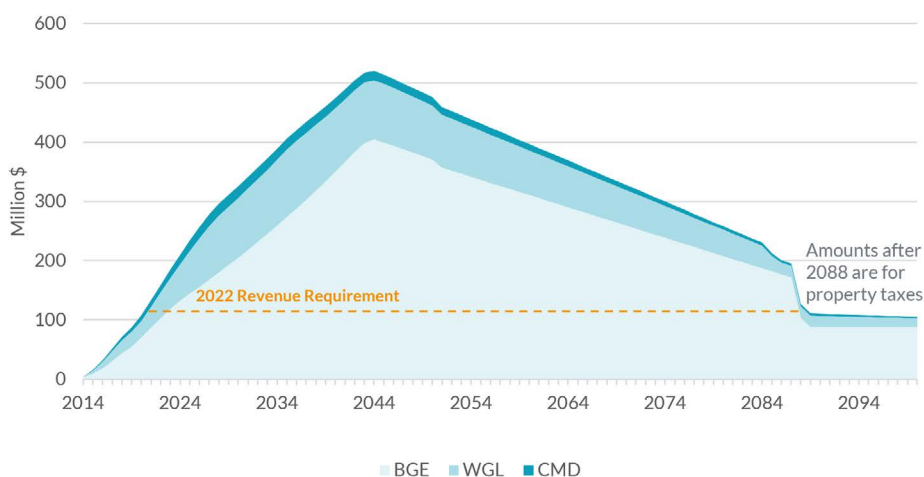
If this pace of investment continues, the capital component of the revenue requirements collected from customers will more than double over the next 25 years...

To understand the impact of our capital investment projections on gas utility rates, we first developed a revenue requirement model that estimated the capital-related components of the revenue requirement. Roughly speaking, the “revenue requirement” consists of the utility’s total revenue needs; the annual revenue requirement is divided by anticipated sales to arrive at the per therm rate that customers pay. (The term is defined in the glossary at the end of this report.) Importantly for customers, the capital investment portion of the revenue requirement accounts for only the costs related to the utilities’ spending on capital expenditures such as depreciation, return on equity, and property taxes; it does not include (a) the utilities’ operational costs nor (b) gas commodity costs that customers pay in their bills.

All utility capital investment enters the utility’s rate base. The rate base is the undepreciated value of utility plant-in-service, composed of the utility’s prior capital investments less accumulated depreciation. It determines the capital investment-related portion of the utility’s revenue requirement (i.e., the annual revenues the utility is authorized to recover from its customers through its rates). Capital investments are recovered from the utility’s customers over time—through a depreciation charge, which is often more than 30 years, and as long as 70 years, depending on the expected life of the asset—until it is fully depreciated. Customers pay both a “return of” investments, in the form of depreciation, and a “return on” investments equal to the utility’s weighted average cost of capital (WACC), which is expressed as a percentage multiplied by the utility’s rate base.¹

The pyramid figure below was made using the revenue requirement model. What makes this figure informative is that it provides context for where the utilities currently are in their overall STRIDE plans. As identified by the orange dotted line, the combined

Figure 1.1: STRIDE Annual Revenue Requirement Pyramid



If STRIDE plans continue as currently constituted, **customers could eventually be paying more than three times** for STRIDE investments than the amounts they are spending today.

¹ The capital-related revenue requirement also includes a tax “gross-up,” including the federal and state income taxes owed if the utility earns its WACC, the property taxes related to the capital investment, and certain other miscellaneous fees.

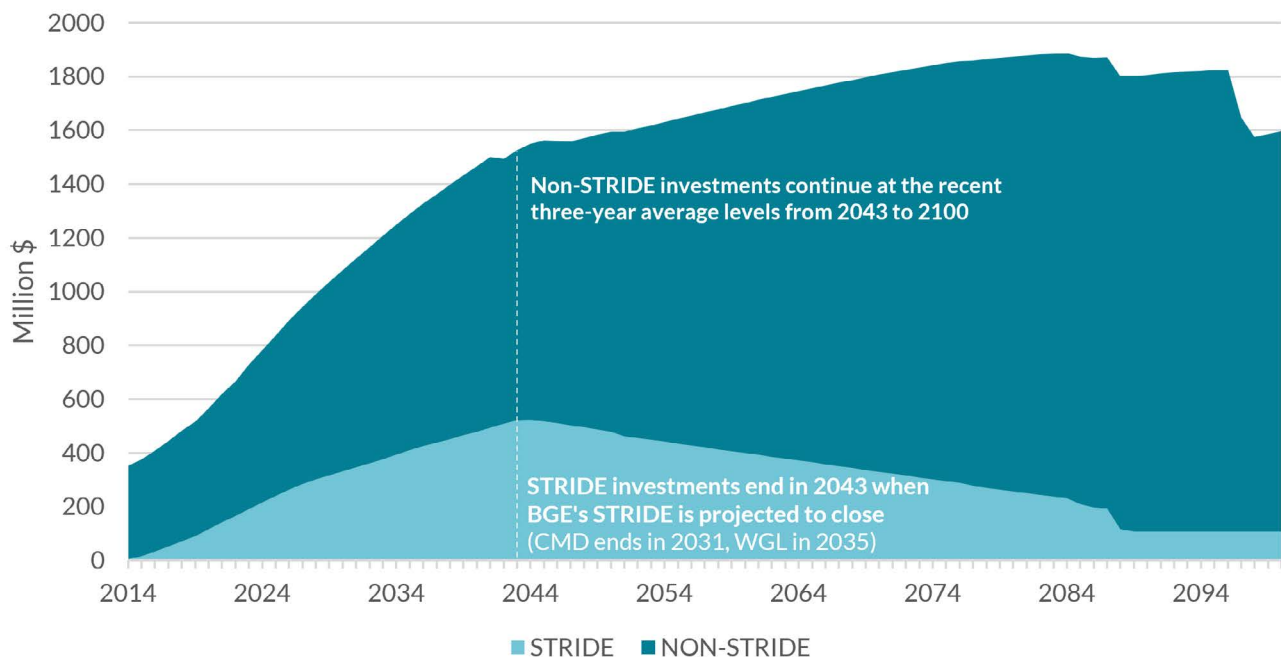
2022 capital investment component of the utilities' revenue requirement of approximately \$160 million across the three STRIDE programs represents a fraction—30 percent—of the \$524.1 million peak in STRIDE revenue requirements that we project for 2044. In other words, if STRIDE plans continue as currently constituted, then Maryland customers could eventually be paying more than three times for STRIDE investments than the amounts customers are paying today.

The STRIDE annual revenue requirement amounts (Figure 1.1) represent only a fraction of the total aggregate capital investment-related revenue requirements customers will need to pay to cover utility capital investments made over the next 80 years. The STRIDE and non-STRIDE capital additions we project through 2100 would result in an annual capital revenue requirement for the three utilities exceeding \$1.5 billion by 2043, or 2.3 times the combined \$667

million in capital investment-related revenue requirements customers are paying through rates in 2022. Put another way, customers today are responsible for paying less than half of the capital investment-related costs that customers will be responsible for in 2043. Figure 1.2 provides both a comparison of the combined non-STRIDE (dark teal) and STRIDE (light teal) capital investment-related revenue requirements across the combined three companies and shows how the total capital investment-related revenue requirements (dark teal + light teal) will evolve over time.

Customers today are responsible for paying less than half of the capital investment-related costs that customers will be responsible for in 2043.

Figure 1.2: Combined Three-Company STRIDE and Non-STRIDE CAPEX Annual Revenue Requirement



...which will result in corresponding increases in base rates charged to customers to cover the rise in rate base.

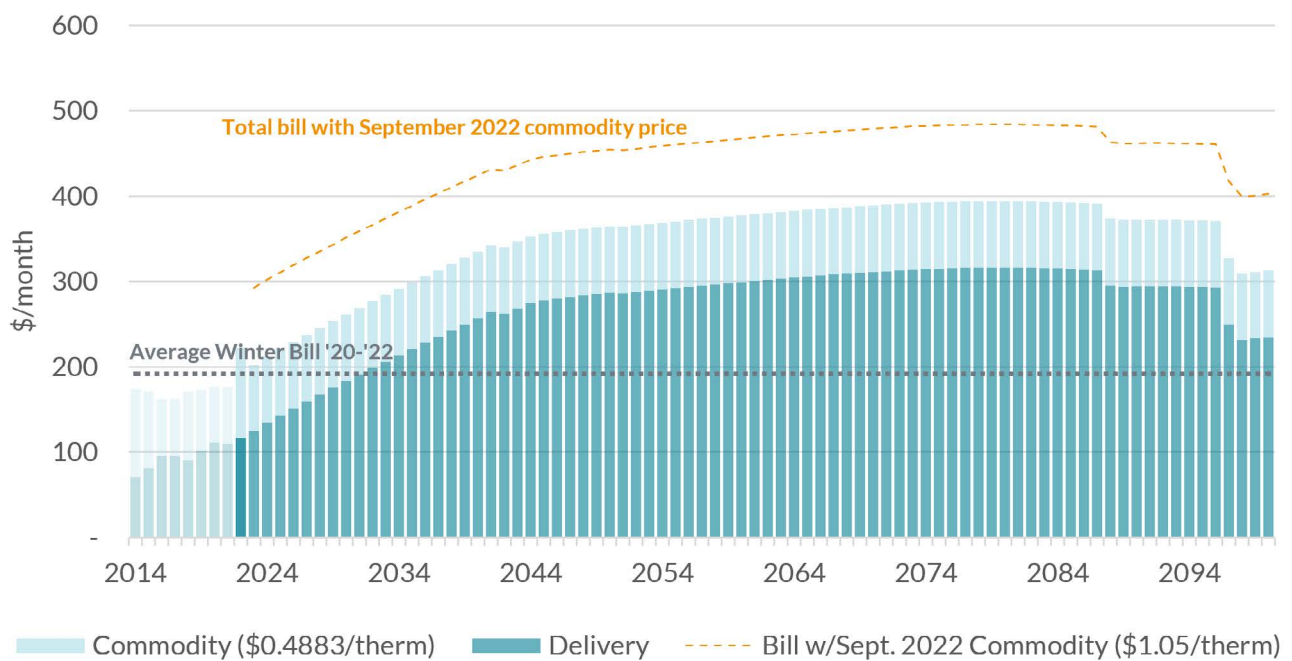
Next, we identified how the capital investments will affect customer rates. This step allocates revenue to the residential heating class of each company using the revenue allocation factors from the most recent STRIDE filings. The billing determinants for customer-months and usage were set based on the revenue calculations in the compliance filing from the most recent rate case for each company. The customer and sales numbers are assumed to remain constant over the evaluation period. Stated otherwise, the projections do *not* account for any migration of gas customers to electric service as a result of electrification policies.

To show the bill impacts over time, we evaluate the typical bill for a winter customer using 160 therms per month in January and February. We use this period because these months tend to be the highest bills for customers.

Figure 1.3 shows that the BGE typical residential customer’s bill will grow from an average of \$192 in 2020-2022 to \$299, a 56 percent increase by 2035, and \$364, a 90 percent increase by 2050. This assumes commodity prices revert back to the five-year averages. If gas prices stay near the current September levels (\$1.05/therm for BGE), then that would add an additional \$90 per month to the typical winter bill.

The BGE typical residential customer’s bill will **increase 56% by 2035.**

Figure 1.3: BGE Typical Winter Bill, 2014-2100



BGE rates for 2021 and 2022 include the Rider 18 offset that was adopted to lower bills in the first two years of the MYRP. This offset amount is removed after 2022.

Figure 1.4 shows that the WGL typical residential customer’s bill will grow from an average of \$160 in 2020-2022 to \$224, a 40 percent increase by 2035, and \$230, a 44 percent increase by 2050. This, too, assumes commodity prices revert back to the five-year averages. If gas prices stay at the September 2022 level (\$1.1314/therm for WGL), then that would add another \$102 per month to the typical winter bill.

Figure 1.5 shows that the CMD typical residential customer bill will grow from an average of \$186 in 2020-2022 to \$270, a 45 percent increase, by 2035 and \$276, a 48 percent increase, by 2050. If commodity prices remain at the September 2022 level (\$0.9491/therm for CMD), that would add another \$84 to the typical winter bill.

Figure 1.4: WGL Typical Winter Bill, 2014-2100

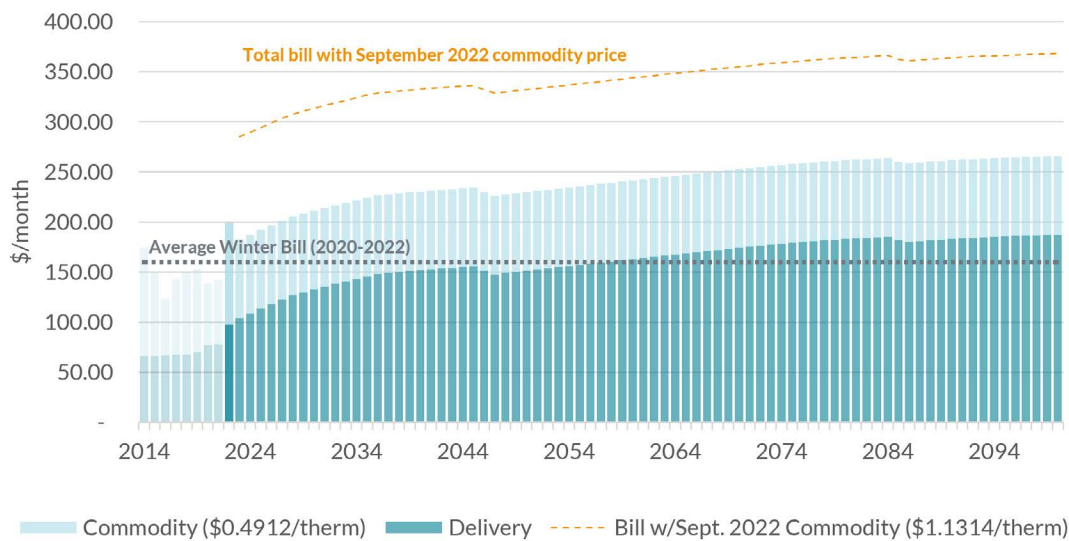
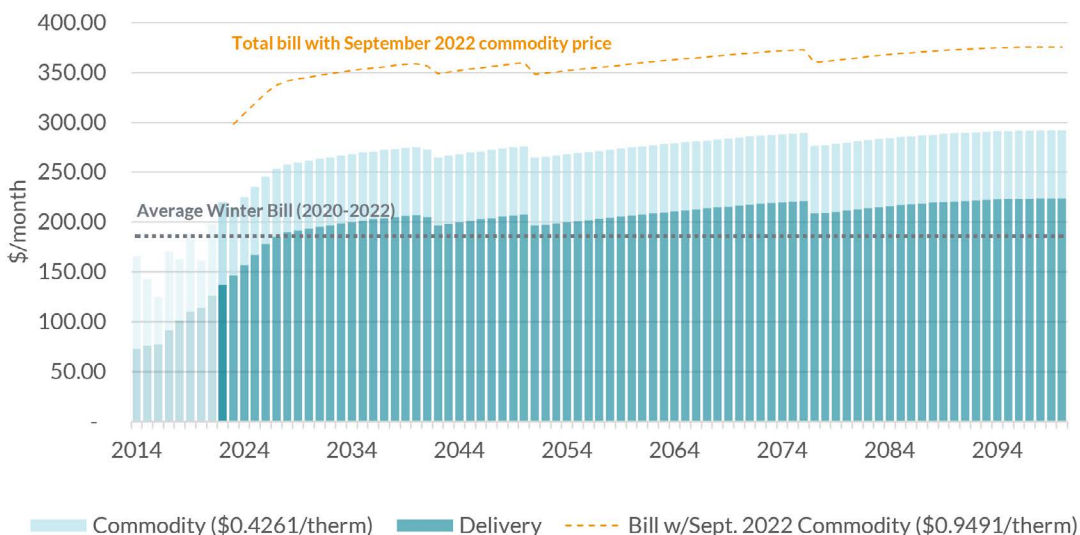


Figure 1.5: CMD Typical Winter Bill, 2014-2100



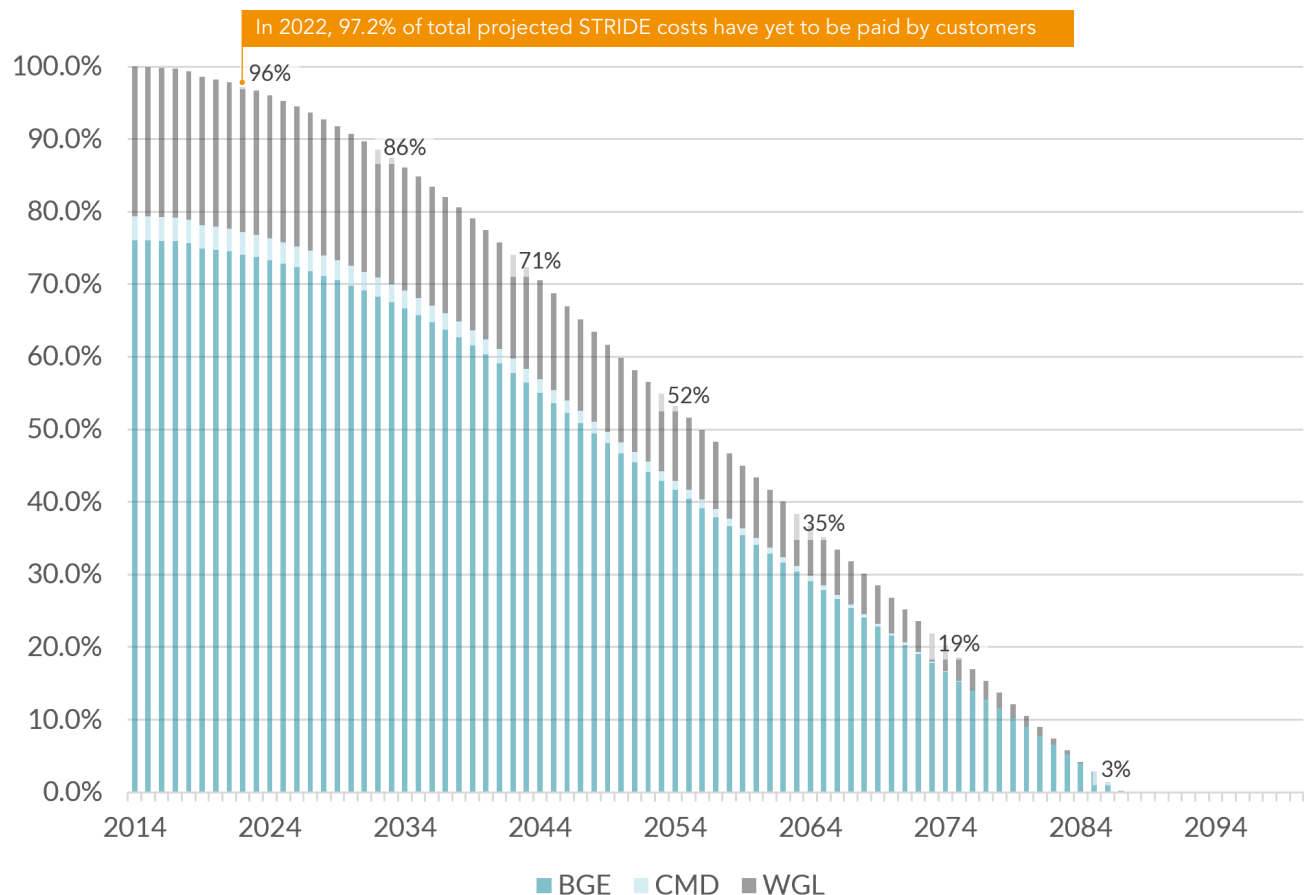
It is important to recognize that Maryland customers are only at the early stages of paying for STRIDE...

We determined the portion of the total STRIDE costs that have already been recovered through rates and, conversely, what portion of the STRIDE costs remain to be recovered. An investment is being “recovered” through rates until it is fully depreciated. Utilities under rate-of-return regulation receive a “return on” the undepreciated value of an investment in the form of a return on equity and a “return of” the investment in the form of depreciation expenses. Accordingly, we use cumulative STRIDE depreciation to represent the amounts recovered through rates.

We combined the results of the individual companies into Figure 1.6 to provide a wholistic view of the remaining years that STRIDE costs will be recovered through rates in Maryland. What is important to recognize from this figure is that right now, in 2022, only 2.8% of the planned STRIDE costs have been recovered through rates. STRIDE cost recovery is still at the early stages with Maryland customers expected to be paying off STRIDE costs until 2087.

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Figure 1.6: Amount of STRIDE Cost Recovery Remaining Across Maryland’s 3 Largest Gas Utilities



...and the true bill impact of these investments has partially been hidden from customers due to reduced gas prices.

Prior to the increase of gas commodity prices in 2021 and 2022, there had been a trend over the previous decade where the distribution proportion of bills was increasing, while the commodity portion of the bill decreased. This was due to two factors: (1) a drop in commodity prices caused by a large increase in U.S. domestic gas supplies due to the expanded deployment in the U.S. of hydraulic fracking techniques to extract gas, and (2) the increase in capital expenditures by the gas utilities on their distribution facilities, specifically the STRIDE expenditures. The combined effect has been that the drop in commodity prices has offset the increase in base rates. Figure 1.7 shows

The drop in commodity prices has offset the increase in base rates.

how a notable flip occurred in 2016: Gas customers began paying more for *delivery* of the gas than for the gas commodity they use, as a proportion of their monthly gas bill.

The increase in gas utilities' distribution prices (or the non-commodity "delivery price") has raised the floor for the total gas bill. When the commodity portion of the gas rate increases, as has happened in 2021 and 2022, customers bear the combined burden of both a return to higher commodity prices and the rise in base rates due to accelerated and increasing capital investments.

Figure 1.7: BGE Typical Winter Bill by Component, 2014-2021 (%)

