STATE OF MARYLAND

BEFORE THE
PUBLIC SERVICE COMMISSION OF MARYLAND

IN RE:		
PETITION OF THE OFFICE OF PEOPLE'S COUNSEL FOR NEAR-TERM, PRIORITY ACTIONS AND COMPREHENSIVE, LONG-TERM PLANNING FOR MARYLAND'S GAS COMPANIES	)))))	**CASE NO. 9707**

DIRECT TESTIMONY OF JIM GREVATT

ON BEHALF OF

THE SIERRA CLUB

MAY 4, 2026

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I. INTRODUCTION & QUALIFICATIONS

Q. Please state for the record your name and business address.

A. My name is Jim Grevatt. I am a Managing Consultant at Energy Futures Group ("EFG"), located at 10298 Route 116, Hinesburg, VT 05461.

Q. On whose behalf are you testifying in this proceeding?

A. I am testifying on behalf of Sierra Club.

Q. Please describe your professional background.

A. I have worked in the energy efficiency industry since 1991 in a wide variety of roles. Prior to joining EFG, I served as the Director of Residential Energy Services at Efficiency Vermont and the District of Columbia Sustainable Energy Utility. I also served as the Manager of Energy Services at Vermont Gas Systems, managing both residential and commercial utility energy efficiency programs. I have extensive hands-on experience conducting hundreds of energy audits for Vermont's Low-Income Weatherization Assistance Program and Vermont Gas Systems' demand side management programs. In my current role as Managing Consultant at EFG, I have advised regulators, utilities, and other energy efficiency program administrators, environmental organizations, and low income and affordable housing advocates in over twenty states and Canadian provinces, and I have provided expert witness testimony in fourteen of those jurisdictions.

Q. You mentioned that you have direct experience with gas efficiency program implementation. Can you say more about your experience at Vermont Gas?

A. Yes. I worked at Vermont Gas for eleven years, conducting comprehensive energy audits and in-progress and final inspections of insulation and air sealing projects for existing

homes. I also trained builders on insulation and air sealing techniques in new home construction and inspected their work. Ultimately, I managed Vermont Gas' entire residential and commercial program portfolio, and while I was working there, our programs were identified as exemplary gas efficiency programs by the American Council for an Energy Efficient Economy ("ACEEE").[1] I also accepted ENERGY STAR® awards for our residential new construction program that was implemented in partnership with Efficiency Vermont. I mention this because my experience is fundamental to my recommendations on the use of non-pipeline alternatives ("NPAs") in mitigating the need for the capital investments the utilities claim they must make.

I received a B.F.A. from the University of Illinois. My resume, included as Sierra Club Exhibit JG-1, provides additional detail regarding my professional and educational experience.

Q. Have you previously filed expert witness testimony in other proceedings before this Commission or before other regulatory commissions?

A. Yes, I filed testimony in Case No. 9692 regarding BGE's Multi-Year Rate Plan. I have also drafted or assisted in preparing written filed comments on behalf of the Maryland Energy Efficiency Advocates ("MEEA") in numerous EmPOWER Maryland proceedings and have appeared before the Maryland Public Service Commission ("Commission") many times over the past decade. The comments I have drafted on behalf of MEEA have addressed, among other issues, EmPOWER filings that the Commission required Washington Gas Light Company ("WGL") to prepare, including WGL's Alternative

[1] Martin Kushler et al., Responding to the Natural Gas Crisis: America's Best Natural Gas Energy Efficiency Programs, Report Number U035 at 14 (Dec. 2003), https://www.aceee.org/research-report/u035.

EmPOWER Energy Efficiency and Conservation Plan ("WGL Alternative Plan")[2] and its "Cost and Efficiency Comparison for Dual Fuel Heat Pump" that was prepared by Guidehouse.[3] In comments on various EmPOWER Plans and Semi-Annual filings, I have recommended the Commission require utilities to discontinue their promotion of high-efficiency gas combustion equipment, such as furnaces, and have urged the Commission to phase out the use of EmPOWER incentives for new homes that connect to gas service. In their place I have supported the increasing promotion of home retrofit and weatherization[4] programs and emphasizing all-electric homes in EmPOWER's residential new construction programs. Adopting such recommendations would improve alignment between EmPOWER and the state's climate goals, and is consistent with the recommendations I will bring forward in my testimony in the instant case. I also supported Sierra Club by preparing on its behalf *Comments on Washington Gas Light Company's Energy Efficiency Potential Study*, which were filed in Formal Case No. 1160 with the Public Service Commission of the District of Columbia.[5]

Additionally, I participated actively in both iterations of the Future Programming Work Group on behalf of MEEA and have represented MEEA in numerous other work groups. In recent years, I have also filed expert testimony in proceedings in Virginia,

[2] Case No. 9705, *In the Matter of the 2024-2026 EmPOWER Maryland Program*, Alternative EmPOWER Energy Efficiency and Conservation Plan, WGL at 6 (Aug. 15, 2025).
[3] Case No. 9705, *In the Matter of the 2024-2026 EmPOWER Maryland Program*, Semi-Annual EmPOWER Maryland Report for the period of July 1, 2024–December 31, 2024, Appendix I: Heat Pump Comparative Analysis, WGL (Feb. 18, 2025).
[4] The term "weatherization" is used to represent a comprehensive approach to reducing the amount of energy required for heating and cooling buildings through the installation of insulation and air sealing measures, as well as improvements to heating and cooling distribution systems.
[5] Pub. Serv. Comm'n of D.C., Case No. 1160: *In the Matter of the Development of Metrics for Electric Company and Gas Company Energy Efficiency and Demand Response Programs Pursuant to Section 201 (b) of the Clean Energy DC Omnibus Amendment Act of 2018*, Comments on Washington Gas Light Company's Energy Efficiency Potential Study, Sierra Club (Aug. 30, 2023).

Pennsylvania, South Carolina, Kentucky, and West Virginia, among other states, as well as in the Canadian provinces of British Columbia and Manitoba.

II. FINDINGS & RECOMMENDATIONS

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to provide a broader perspective for the Commission on viable, proven alternatives to the gas Companies' excessive prioritization of putting new pipe in the ground, as expressed variously and collectively by Baltimore Gas & Electric ("BGE"), WGL, Columbia Gas of Maryland, Inc. ("Columbia"), Chesapeake Utilities of Maryland, Inc. ("Chesapeake"), and UGI Utilities, Inc. ("UGI") (collectively, "the Companies") in this docket. I discuss reasonable approaches for assessing and significantly increasing alternative investments through mechanisms including NPAs, which will maintain reliability and safety, reduce greenhouse gas ("GHG") emissions in compliance with Maryland's climate policies, and save customers money.

While it is reassuring that Order No. 92388 seems to prevent gas companies from re-litigating whether electrification is feasible as a policy (i.e., whether Maryland *should* replace gas appliances with electric ones)—and whether the electric grid is equipped to handle the load from those additional appliances, which is clearly a matter that should be left to electric utilities to determine—I still read Order No. 92388 as permitting the consideration of any NPAs that involve electrification.[6] Electrification (i.e., the widespread conversion of gas appliances and equipment to electric alternatives) is the most quintessential NPA, because when customers electrify and leave the gas system, this

[6] Case No. 9707, *In the Matter of the Petition of the Office of People's Counsel for Near-Term, Priority Actions and Comprehensive, Long-Term Planning for Maryland's Gas Companies*, Order No. 92388 (May 1, 2026).

directly enables gas companies to avoid sinking ratepayer money into new pipeline infrastructure. With this in mind, my testimony describes how electrification would work as a type of NPA, along with energy efficiency and demand response, two other important types of NPAs.

Q. Which issues from Order No. 91791 does your testimony address?

A. My testimony primarily responds to the following questions and subparts in Order No. 91791, which the Commission directed the parties to address:[7]

> **5.** What, if any, rate design changes are necessary to address issues raised by changes to natural gas company operations, including, but not limited to, increases or decreases in gas demand, current and future climate policies, and other future changes in legislation?
>
> **6.** How should the potential for any stranded costs from future natural gas company capital investments be accounted for in long-term gas company planning?
>
> **a.** What, if any, specific policies, guidelines, or regulations should be developed now with respect to the future expansion of natural gas facilities through capital investment?
>
> **8.** How should non-pipeline alternatives (NPAs) be evaluated and incorporated into gas company planning, if at all?
>
> **a.** How do NPAs affect investment in capital project planning?

My testimony also briefly discusses the following issues:

[7] Order No. 91791 at 7–8 (Aug. 20, 2025).

3. What policies, guidelines, or regulations, if any, should be adopted to ensure that future natural gas company planning practices adequately address the State's climate goals?

9. What is the impact of the recent modifications to the STRIDE statute on current natural gas company long-term planning practices? (PUA §4-210 modified by Next Generation Act at 8–14)?

10. Understanding that there are significant legal issues that would have to be addressed, could the State's achievement of its climate goals and net-zero GHG emissions be achieved or mitigated by maintaining natural gas use at current levels?

a. What policies or programs currently authorized, or that could be authorized, by the commission that could assist in mitigating GHG emissions from the existing natural gas system in an economical fashion?

11. What policies, guidelines, or regulations, if any, should be adopted to address whether it is more appropriate to repair natural gas company facilities rather than replace them?

12. How should future technological innovations, demand response programs, more efficient appliances, and other mechanism, be addressed in gas company planning?

These issues are inter-related and several of my recommendations are responsive to more than a single question.

Q. What are your primary observations on the Companies' filings?

A. My primary observations are as follows:

1. The Companies appear to be staunch supporters of a business-as-usual approach to system planning that does not adequately reflect the inclusion of NPAs.

2. Several of the Companies stress the importance of a "no regrets" approach to gas system planning, yet their over-reliance on capital investments to perpetuate the consumption of fossil fuels in Maryland fails to qualify as a no-regrets strategy.

3. Electrification (i.e., the conversion of gas appliances and equipment to electric alternatives) will comply with Maryland's climate laws by reducing GHG emissions.

Q. Please summarize your view in response to Issue 5 regarding rate design changes that may be necessary to address issues raised by changes to natural gas company operations including, but not limited to, increases or decreases in gas demand, current and future climate policies, and other future changes in legislation.

A. The Companies' general recommendations to shift a greater portion of customer bills to fixed rather than variable charges is ill-advised, as that will remove the conservation incentive that a meaningful variable rate provides, and will lessen customers' ability to manage their energy bills by conserving energy. Creating higher fixed and lower variable costs will also increase GHG emissions—and potentially increase the costs of maintaining the gas system—as customers will have little incentive to reduce gas consumption. I discuss this further below.

Q. Please summarize your views in response to Issue 6.a regarding the specific policy approach the Commission should take regarding the expansion and reinforcement of gas pipeline infrastructure.

A. Continued reliance on expanding the use of gas combustion appliances in homes and businesses runs counter to the State's climate objectives and is not in customers' best economic interests. The Commission should ensure existing customers do not pay for unnecessary expansions in service that could be more economically served without the

use of gas. Customers should not be saddled with unnecessary infrastructure expansion costs when lower cost, cleaner alternatives are available. Energy efficiency, demand response, and electrification/all-electric construction should be prioritized as tools for addressing growth and capacity needs.

Q. Do you agree with the Companies that their recommended approaches represent a "no-regrets" strategy?

A. Not at all. In fact, I believe that substantially following the Companies' recommendations will lead to significant regrets for the Commission and utility ratepayers. The only parties who stand to have no regrets by following the Companies' recommendations are the utility shareholders who will profit from unnecessary capital investments. The cornerstone of a true "no regrets" policy approach is the prioritization of fulsome use of NPAs, which are more likely than business-as-usual to address expansion needs economically.

Q. What would your recommended "no regrets" policies include?

A. Expansion of gas infrastructure is costly and contradictory to a clean energy future in Maryland and therefore should not be pursued. As I will demonstrate, a plain language reading of current State law requires gas utilities to demonstrate that they have fully assessed NPAs to capital investments when seeking cost recovery. A true "no regrets" strategy for the Commission and the State's utility customers will be widely offering home weatherization and energy efficiency initiatives that do not rely on promoting new gas combustion equipment, strategic energy management in commercial and industrial operations, mitigation of gas capacity peaks through demand response programs such as time-of-use and interruptible rates, prioritization of all-electric new construction, and

electrification of existing gas end uses, particularly where doing so is more economical than continuing to use gas.

Q. Please summarize your views in response to Issue 8 regarding how NPAs should be evaluated and incorporated into gas company planning.

A. NPAs are multi-pronged tools that, when used in a fulsome manner, can reduce capital expenditures while simultaneously reducing GHG emissions. NPAs have a critical role to play in mitigating unnecessary expenditures the Companies make on behalf of customers. They also fundamentally reduce GHG emissions by reducing gas use. This is a potential the Companies acknowledge, yet they have barely scratched the surface of what is possible. For example, to date, gas energy efficiency programs have fallen under the EmPOWER umbrella and have primarily been managed to achieve system-wide savings goals, rather than as a tool to defer or avoid capital investments.

I believe there is strong evidence that much, much greater use of NPAs can be made cost-effectively to not only reduce capital costs that are borne by customers, but to provide even more bill savings for those customers who participate in NPA programs, while also reducing the climate harms and indoor air quality concerns caused by combusting gas in homes and businesses. In order for this potential to be realized, the Companies must make changes to their business-as-usual planning processes. Consideration of NPAs must become a mandatory, routine component of utility capital and gas planning.

Q. What forms of NPA do you recommend the Commission require the Companies to develop?

A. The NPAs I discuss in my testimony include energy efficiency, demand response, and weatherization measures, as well as electrification and geothermal pilot programs. There

are other effective NPAs the Commission should also require the gas companies to adopt and use more widely, including advanced leak detection measures coupled with targeted repairs of leaking pipes, and potentially installing liners inside existing pipes. I believe there are important programmatic opportunities for the Companies to implement electrification, energy efficiency, demand response, weatherization, and geothermal programs for their customers, thus reducing the need for unnecessary capital investments and saving customers money in the long run.

Q. What are your primary recommendations for the Commission in this case?

A. My recommendations are as follows:

1. As an NPA, I recommend the Commission require the Companies to develop robust electrification pilot programs that will provide comprehensive information about the ability of electrification to defer or outright avoid capital investments in the gas system, and to support strategic retirement of mains and services that are targeted for replacement. As discussed below, each gas company should:

    a. Identify and catalogue sections of distribution main and services that could be isolated from the system, grouping them based on age, condition, and anticipated date by which major repairs or replacements are targeted (presumably this is already an ongoing activity).

    b. Overlay this catalogued list with geographic information regarding (1) the type, age, and condition of buildings and other structures served and the likely gas end uses found in those structures; (2) the Companies' ability to physically isolate each segment from the distribution system such that it could potentially be retired; (3) the expected level of effort required for

pipeline replacement based on factors such as the age and condition of pipe, excavation and surface conditions (e.g., would the level of effort be greater in dense urban areas?); and (4) the relative level of risk of facing unexpected conditions and increased replacement costs.

c. Rank each of the identified sections by these criteria to determine which are most suited for implementation of pilot electrification programs. For example, sections that would require a higher level of effort for pipe replacement with a greater level of risk, or that serve easier-to-electrify structures, would be ranked more favorably for pilot electrification than sections serving difficult-to-electrify structures.

d. Submit its transparent list of these ranked sections to the Commission with a proposal to develop and implement five neighborhood electrification pilot programs on the basis of this ranking and analysis over the next five years.

2. As other NPAs, the Commission should require the Companies to propose new cost-effective non-equipment energy efficiency (e.g., weatherization)[8] and demand response programs with measures specifically focused on reducing design day capacity requirements. These programs would be targeted to customers in sections of each company's distribution system that are ranked lower-priority locations for electrification due to factors such as the difficulty of isolating that section from the system, or the difficulty of electrifying due to end

[8] Considerable evidence has been filed in Case No. 9705 demonstrating that the promotion of gas combustion equipment, such as gas furnaces, is neither cost-effective nor consistent with the State's climate goals.

uses in the connected structures.

3. Approval of the Companies' proposed electrification pilot programs and energy efficiency and demand response programs should be considered in fully litigated proceedings that allow agencies and parties to promulgate discovery and develop and present evidence.

4. On an ongoing basis, the Commission should require the gas companies to file regular semi-annual reports describing the experience and results of the pilot electrification projects and energy efficiency and demand response programs.

5. As another NPA, the Commission should direct the Companies to pursue neighborhood geothermal pilot programs to better understand how geothermal can address building heating and cooling needs without the use of fossil fuels.

6. The Commission should designate a staff advisor and/or Public Utility Law Judge to serve as NPA implementation experts, review these semi-annual reports, and make recommendations to the gas companies and the Commissioners regarding the programs' implementation successes and potential improvements.

III. ISSUES 3 & 10: ALIGNING GAS OPERATION WITH MARYLAND'S CLIMATE GOALS

A. It is important to avoid incorrect assumptions in any analysis of the emissions impacts of electrifying Maryland's appliances and equipment.

Q. Is electrification of natural gas end uses a component of the State's plan to achieve its climate policy objectives?

A. Yes. The Maryland Department of the Environment ("MDE") has adopted Maryland's Climate Pathway, which states that "[o]ne of the key priorities for Maryland to achieve its climate goals is building electrification and efficiency measures, which utilize both the

higher efficiency of electrical appliances and the increasingly clean electricity grid to reduce emissions."[9] Indeed, in written comments to the Commission in Case No. 9707, MDE stated that "EmPOWER Maryland incentives for new fuel-burning equipment, [is] a practice that is inconsistent with State policy" and noted that "the State's Climate Pollution Reduction Plan and Governor Moore's Executive Order, 'Leadership by State Government: Implementing Maryland's Climate Pollution Reduction Plan,' calls on MDE to advance a Zero-Emission Heating Equipment Standard to transition from fuel-burning to zero-emission heating equipment in buildings statewide."[10] In practical terms, this can only be accomplished through electrification of gas end uses.

Q. Will adoption of the State's policies in favor of electric appliances and heating equipment in buildings increase GHG emissions?

A. No. While the issue of whether electrification (i.e., replacing gas with electric appliances and equipment in buildings) reduces GHG emissions may not be in the scope of this docket per Order No. 92388, I briefly want to explain why it is important for any assessment of this topic to rely on the best available information and incorporate the correct assumptions. To project the change in GHG emissions resulting from converting gas heating to electric heat pumps, one must take into account current forecasts of the expected decarbonization of the electric grid. An example of a biased, incorrect analysis is WGL Witness Stephen Wemple's. While this appears to no longer be in the scope of this docket based on Order No. 92388, I will briefly mention Witness Wemple's analysis to illustrate the type of data that should not be used in assessing GHG emissions under an

[9] Maryland's Climate Pathway Report, Md. Dept. of Env't. at 53 (June 2023), https://tinyurl.com/mr3vs3ys.
[10] Case No. 9705, *In the Matter of the 2024-2026 EmPOWER Maryland Program*, Comments, Md. Dep't of Env't (Oct. 15, 2025).

electrified future. In his originally filed testimony, Witness Wemple stated that he "used the average of PJM's marginal emissions for calendar year 2024 for his calculations" of the GHG emissions resulting from electrification, and "did not make any projections about whether the emissions associated with a kWh of electricity use would increase or decrease over the coming years."[11] Based on that assumption, he concluded that "electrification of heating systems results in an increase in GHG emissions associated with Washington Gas' current space heating customers of 398,000 tons/year."[12]

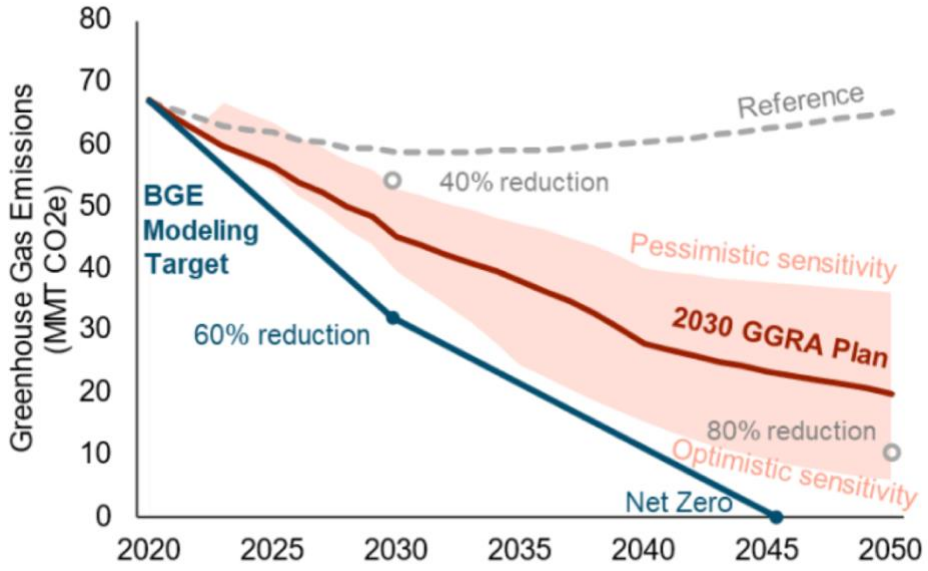
Q. Is there publicly available evidence that GHG emissions from the electric grid are expected to decline?

A. Yes, such data are abundantly available. Witness Wemple assumed that consumption of one megawatt-hour (MWh) of electricity would emit 1,143 pounds of carbon dioxide equivalent (lbs CO_2e) based on the average of 2024 hourly emissions rates for PJM,[13] and that rate of emissions would remain constant. This assumption is indefensible. In stark contrast to Witness Wemple, the EmPOWER Future Programming Work Group worked closely with MDE to apply realistic emissions projections to the development of proposed EmPOWER GHG abatement goals. The Future Programming Work Group based its proposed 2027-2029 life-cycle GHG abatement recommendations to the Commission on a steeply declining marginal emission rate, based on projections from MDE. In that analysis, the Future Programming Work Group estimated that on average, over a 15-year measure life, one MWh of electricity would emit 559 lbs. CO_2e[14]—less

[11] WGL Resp. to Sierra Club Data Request 2-4.
[12] Direct Testimony of Stephen Wemple, WGL at 21–22 (Feb. 9, 2026) [hereinafter "Wemple Direct"].
[13] WGL Resp. to Sierra Club Data Request 2-11, Attachment 1, tab "Exh MD SBW-10 GHG Emissions."
[14] Case No. 9705, *In the Matter of the 2024-2026 EmPOWER Maryland Program*, Future Programming Work Group Status Report EmPOWER Maryland, Office of Staff Counsel at 18 (Oct. 20, 2025). This calculation was made by multiplying 2,204 lbs/metric ton by 0.2536 metric tons per MWh for a 15-year EUL = 559 lbs per MWh.

than half the value used by Witness Wemple. It is illustrative that BGE's Integrated Decarbonization Study also assumed a decarbonizing grid, and while the exact level and rate of decarbonization of the electricity sector are subject to discussion, all scenarios show steep declines in emissions, as shown in Reproduced Figure 1 below.

Figure 1. *BGE Integrated Decarbonization Strategy*[15]



Q. Are there examples of other unrealistic and misleading assumptions in Witness Wemple's analysis?

A. Yes. For example, Witness Wemple did not present a scenario in which electrification occurs over a trajectory of multiple years, which is the only plausible scenario. Witness Wemple seems to present a comparison that assumes all of WGL's customers electrify in a single instant in time. When pressed to confirm this in discovery, Witness Wemple said that his "analysis quantified the costs in current dollars and did not make any assumptions

[15] Tory Clark et. al., *BGE Integrated Decarbonization Strategy*, E3 Energy and Environmental Economics at 1 (Oct. 2022), www.ethree.com/wp-content/uploads/2022/10/BGE-Integrated-Decarbonization-White-Paper_2022-11-04.pdf.

as to when customers would migrate from gas to electric heating."[16] However, if a customer were to electrify ten years from now, the effects of inflation, as well as likely technological improvements to heat pumps that would affect their cost, would lead to very different cost assumptions than using current dollars today.

In sum, Witness Wemple did not reflect a decarbonizing grid in his analyses, and also failed to consider the time value of money by using current dollars instead of a net present value approach. Fundamental flaws such as these erase the value of any conclusions that can be drawn. In Witness Wemple's case, the only conclusion one can reach is that his analysis is wildly unrealistic in assuming emissions remain constant at 2024 PJM rates and assuming costs that disregard the time value of money.

Q. What would be required for total electrification to occur for WGL's customers?

A. Most importantly, it would take time. It is simply untenable to think that all of WGL's heating customers could suddenly switch to heat pumps overnight. The State's distributors do not have enough heat pumps, and installation contractors do not have enough employees to do everything all at once—it just is not possible. Witness Wemple's overly simplistic assumption regarding when system-wide electrification could occur is just another example of how the use of poor assumptions can lead to conclusions that do not meaningfully add to an understanding of the potential benefits of electrification. As a result of such assumptions, Witness Wemple presented a distorted view of the costs and emissions that could result from electrification of WGL's gas system.

[16] WGL Resp. to Sierra Club Data Request 2-3.

ISSUES 8 & 9: LEGISLATION THAT AFFECTS NON-PIPELINE ALTERNATIVES

Q. Are you aware of the provisions of HB 1532 regarding EmPOWER requirements for Maryland's gas utilities?

A. Yes. The General Assembly recently enacted legislation that, among other things, reduced the GHG abatement requirement for electric utilities and, beginning in 2027, entirely removed the requirement for gas utilities to achieve GHG abatement savings.[17]

Q. Does HB 1532 impact the Commission's questions regarding the use of NPAs?

A. I am not a lawyer, but I do not believe HB 1532 has any bearing on the appropriateness of NPAs. In fact, I believe it is the Commission's mandate to ensure the Companies are making good on their obligation to provide safe, reliable, and *affordable* energy. The law removes the statutory obligation for gas utilities to achieve prescribed GHG savings in the context of EmPOWER, but the Commission retains the authority to conceive and implement regulations to reduce customer costs and thus reduce their gas bills. NPAs function in service of that goal, and thus I believe it is clear the Commission has the authority to require the Companies to use them.[18] It is also my understanding that the Commission has the authority to impose regulations to mitigate the harmful climate effects of energy use. When regulating utilities, the Commission is required to consider "the achievement of [Maryland's] climate commitments for reducing statewide greenhouse gas emissions" and "the preservation of environmental quality, including protection of the global climate from continued short–term and long–term warming based on the best available scientific information recognized by the Intergovernmental Panel on

[17] At the time of this writing, HB 1532 bill has not yet been signed by Governor Moore.
[18] The EmPOWER Act of 2008 established energy efficiency goals through 2015, after which the Commission established savings requirements for the utilities in Order No. 87082.

Climate Change."[19]

Q. What role does the 2025 Next Generation Energy Act play in requiring consideration of NPAs in the Companies' planning processes?

A. I am advised by counsel that the 2025 Next Generation Energy Act, discussed in Issue 9 in Order No. 91791, further shows the Commission has the authority to require gas companies to consider NPAs. This Act requires gas companies, in order to recover their spending on pipeline replacements under the Strategic Infrastructure Development and Enhancement ("STRIDE") program, to provide "an analysis that compares *the costs of proposed replacement projects with alternatives to replacement*, including leak detection and repair."[20] The Act separately requires gas companies to show they have "analyzed available cost–effective options to defer, reduce, or remove the need to replace, construct, or upgrade components of the gas company's distribution infrastructure, including leak detection and repair[.]"[21] On the Commission's part, in order to approve any proposed STRIDE plan, the Commission must make several findings, including that the plan is "required to improve the safety of the gas system *after consideration of alternatives to replacement*."[22] These provisions show a clear requirement for gas companies to carefully analyze NPAs before replacing any pipelines—which highlights the importance of requiring gas companies to seriously consider NPAs in the context of Case No. 9707.

[19] MD. PUB. UTIL. CODE ANN., § 2–113(a)(2)(v)-(vi).
[20] *Id*. § 4–210(e)(2)(vi) (emphasis added).
[21] *Id*. § 4–210(e)(6)(ii)(1).
[22] *Id*. § 4–210(f)(3)(iii) (emphasis added).

IV. ISSUE 5: RATE DESIGN CHANGES

A. Recommendation: Reject utility suggestions to increase fixed charges relative to variable charges.

Q. What do the Companies propose for changing the current rate structures?

A. BGE recommends "increasing the Customer Charge and Demand Price to GCOSS-supported levels while concurrently reducing variable charges in a revenue neutral manner."[23] UGI recommends that rates "either reflect the full amount of the current distribution revenue requirement as a fixed charge, or at least a much more substantial portion of the total revenue requirement as part of the customer charge for those components of the cost of service that do not change based on use."[24] WGL says that "the Commission should not hastily move away from the currently approved rate design without substantial evidence that usage patterns and system utilization have changed."[25] Chesapeake says that "[a]ny rate design changes are most appropriately addressed in a company-specific rate case proceeding"[26] and does not make any recommendations in the instant case. Columbia likewise says that "no rate design changes are needed."[27]

Q. Would the changes advocated by BGE and UGI support Maryland's climate policies that call for a decarbonized energy system?

A. No. In fact, they would do just the opposite. When customers' energy bills are primarily based on the quantity of energy used, there is an inherent conservation incentive, and clearly consuming less gas would lead to fewer GHG emissions. However, when such a conservation incentive is absent—effectively because using less energy does not make

[23] Direct Testimony of John C. Frain, BGE at 40 (Feb. 9, 2026) [hereinafter "Frain Direct"].
[24] Direct Testimony of Jessica Rogers, UGI at 5 (Feb. 9, 2026) [hereinafter "Rogers Direct"].
[25] Direct Testimony of Gregg H. Therrien, WGL at 7 (Feb. 9, 2026).
[26] Direct Testimony of Matthew Everngam, Chesapeake at 4 (Feb. 9, 2026).
[27] Direct Testimony of Mark Kempic, Columbia at 5 (Feb. 9, 2026) [hereinafter "Kempic Direct"].

much of a difference in the total amount of a customer's bill—there is little reason for them to conserve energy. It is also worth noting that if removing the conservation signal leads to higher gas use, it could also lead to higher operating costs by increasing capacity requirements. It is simply a bad idea.

Q. Can you provide examples of how the cost per unit of energy serves as a conservation incentive?

A. Absolutely. Consider the growing implementation of time-of-use rate structures among electric distribution companies. The very premise of such structures is that higher unit energy prices at certain times of the day will discourage energy use at those times when demand is higher, and the cost of meeting that demand is also higher. For example, BGE offers the EVsmart® Vehicle Charging Time-of-Use (EV-TOU) Rate to residential electric customers, which provides them with a price signal that incentivizes charging at off-peak times when overall electricity demand—and therefore impacts on the electric grid—are lower.[28]

Q. Is it sufficient for BGE to claim that, under its recommendations, rates would be revenue-neutral and bills would not change for a typical customer?

A. No. BGE has provided no analyses of the effect such a change would have on customers who are not typical. Customers who currently use less than the "typical" customer—possibly because they must conserve in order to manage their monthly bills—would see their monthly bills increase under the higher fixed charge scenario recommended by the Companies. While they claim this is a move towards a more equitable allocation of costs,

[28] EVsmart® Vehicle Charging Time-of-Use (EV-TOU) Rate, BGE (last visited May 3, 2026), www.bge.com/smart-energy/innovation-technology/electric-vehicles/ev-tou-rate.

in fact it could disproportionately harm lower-income customers who have the least ability to pay.

V. ISSUE 6.A: SPECIFIC POLICIES, GUIDELINES, OR REGULATIONS WITH RESPECT TO THE FUTURE EXPANSION OF NATURAL GAS FACILITIES THROUGH CAPITAL INVESTMENT

A. Recommendation: Line extensions should not only consider the direct line extension costs, but also any related system reinforcement costs.

Q. Several of the Companies describe what they call an obligation to serve. What do they mean by that, and does this obligation apply to capital investments required to serve new customers?

A. BGE, for example, says that it "has an obligation to provide service to any customer—residential, commercial, or industrial—that wants to connect to the Company's electric and gas systems."[29] Columbia similarly states that "[g]as utilities have an obligation to serve customers under Maryland law."[30] It is not clear if the Companies' statements mean that they believe they must serve any potential customer who may want to connect to their systems, regardless of the specific circumstances, but there is evidence that the circumstances matter. I am not a lawyer, but a plain reading of Maryland law would suggest there are criteria that must be met before a gas utility can recover the costs of serving new customers. Specifically, under the Next Generation Energy Act's requirements, in order to recover in rates any "reasonable and prudent costs associated with a planned gas infrastructure investment," a gas utility would need to demonstrate the customer benefits of that investment and that it had "analyzed cost-effective options available to defer, reduce, or eliminate the need to replace, upgrade, or construct new

[29] Frain Direct at 10.
[30] Kempic Direct at 10.

components."[31] Therefore, broadly speaking, it would appear that if there are capital investments required in order for a customer to be served, the costs of those investments must pass scrutiny before being approved. This applies in a number of contexts, such as where a line extension is required to serve a new development.

Q. Has the Commission provided guidance on how the Companies should apply these requirements in practice?

A. I believe that examining the evidence that is needed to support such guidance is one of the principal reasons for establishing this docket. However, we can already look to one specific example where the Commission established its stance regarding gas companies' obligation to construct line extensions for new customers who wish to connect to a gas distribution system. Regarding the costs of gas line extensions, the Commission found that previous policies that allowed line extension costs to be socialized over the full customer base "mask the true cost of extending gas service to a new customer"[32] and that "Maryland's energy policies, which call for continuing reductions in greenhouse gas emissions and greater electrification may no longer be compatible with the status-quo for how gas line extensions are funded."[33] As a result of these findings, the Commission determined that "[a] customer that prefers to use natural gas should, therefore, be expected to pay the actual cost of obtaining that service without artificial incentives to do so,"[34] and concluded, "a change in the extension policy at this time is consistent with traditional ratemaking principles. Basic cost causation principles dictate that to the degree

[31] MD. PUB. UTIL. CODE ANN. § 4-214(c).
[32] Order No. 91683 at 7.
[33] *Id.* at 8.
[34] *Id.* at 9.

possible, the entity causing the cost should be the entity that bears the cost."[35] The clear criteria that gas utilities must comply with in order to build line extensions to serve new customers qualify the Companies' claims that they have an obligation to serve any customer who wishes to have gas service.

Q. Are there potential costs associated with a line extension in addition to the cost of constructing new pipe beyond the end of the existing distribution system?

A. Yes, there are potentially other costs that may not currently be captured in these analyses. For example, BGE states that "[a]s gas customer growth or customer load increases occur across the system over time, either locally or more broadly, the gas system must be reinforced to ensure both new and existing customers have reliable service."[36] This suggests rather clearly that the addition of new customers can cause a company to need to reinforce sections of existing pipe to manage capacity needs, both when that load growth happens across an entire system, or in a specific locality. It follows that serving the expected loads for a new development could create a need to reinforce the distribution system leading to the connection point of that new development.

Q. In the situation you describe, where an existing distribution system needs to be reinforced due to the increased loads associated with line extensions, who would pay the cost of that reinforcement?

A. As far as current practice goes, that question would be for the Companies to answer. However, let us look at a specific hypothetical example—for instance, where a new subdivision is being planned that would add 500 single family homes to a community. In

[35] *Id*.
[36] Direct Testimony of Nichole R. Owens, BGE at 40 (Feb. 9, 2026) [hereinafter "Owens Direct"].

this hypothetical, the subdivision would request gas service and would require a line extension that would expand gas service by adding pipe to the end of an existing gas main that had been designed to serve a community of 1,000 homes, which have since been built. The addition of 500 new homes would cause a capacity constraint for the existing main. This would require either reinforcement of that main, or implementation of a suitable NPA in addition to a line extension. My assumption is that those reinforcement costs—even though they are a direct cost associated with the line extension—would not be assigned to the extension, but rather would be socialized across the customer base. In other words, existing customers would likely pay part of the cost of adding new customers, despite the guidance issued by the Commission. Presumably the Companies view such costs as part of their ongoing distribution system maintenance costs, but if I am mistaken, I welcome clarification from the Companies.

Q. Would these reinforcement costs be subject to the requirement in PUA § 4-214(c)(2), whereby a gas company must demonstrate that it has "analyzed cost-effective options available to defer, reduce, or eliminate the need to replace, upgrade, or construct new components"?

A. Again, while I cannot offer a legal opinion, a plain reading of the statute would suggest that those reinforcement costs would be subject to the cited requirement, because they would constitute a planned gas infrastructure investment. Prior to undertaking any reinforcement projects like the one described above, a gas utility should assess the potential for NPAs to reduce capacity needs in the existing distribution network enough to compensate for the new line extension. Energy efficiency, demand response, and electrification all have the ability to reduce capacity demands to compensate for load

growth—and I will discuss this at more length. However, it is important to note first that whether such NPAs are implemented or, instead, system reinforcements are carried out, if the need for these investments is caused by new customer growth, any distribution network upgrade costs should be fully reflected in the costs of the line extension that those new customers are required to bear.

VI. ISSUE 8: INCORPORATING NON-PIPELINE ALTERNATIVES IN CAPITAL PROJECT PLANNING

A. Recommendation: Programmatic NPAs should be used to reduce load growth and related capital infrastructure investments. Making full use of these resources requires identifying potential system constraints early to allow time for developing and launching NPA programs.

Q. Does the requirement for a gas utility to analyze "cost-effective options available to defer, reduce, or eliminate the need to replace, upgrade, or construct new components" apply to the distribution system more broadly?

A. I see no reason why the requirement would not have broad applicability. The example I provided earlier describes a specific context in which a potential line extension would cause capacity needs in a local area to grow, thereby necessitating reinforcement of the existing system—reinforcement that is only required because of the addition of new customers connected to the line extension. But even when growth causes capacity constraints generally, the statute should apply, such that prior to implementing any capital investments required as a result of load growth, the gas utility would be required to assess the ability of NPAs to address that growth.

Q. What types of NPAs would be applicable for consideration as alternatives to capital investments?

A. Energy efficiency, demand response, and electrification all have applicability—either

singly or in combination—as they can all reduce peak capacity demands on the system. As noted above, my discussion of electrification is limited to its usage as an NPA strategy, which will reduce gas usage by enabling gas customers to shift to electric appliances and equipment for heating, cooking, washing and drying clothes, and performing other functions in their homes and buildings. Electrification is an important NPA because it enables gas customers to leave the gas system and the Companies to avoid spending ratepayer money on building new pipelines.

As NPAs, both energy efficiency and electrification reduce load/throughput generally, but also reduce peak capacity requirements in heating and cooling applications, or in any application where gas would be used at times of peak demand. Demand response can specifically be used to reduce the peak capacity requirements that may drive expected capital investment needs. In particular, NPAs can be effective in mitigating growth-related investments. BGE, for example, describes its capacity planning and management as being "designed to address inadequate capacity and poor pressures on BGE's gas distribution and transmission systems. The work ensures system capacity and reliability for gas customers in all weather conditions down to Design Day conditions."[37] BGE notes that "[o]ne of the primary key drivers for this work—although not the only driver—is collective load growth."[38] Simply put, NPAs in the form of energy efficiency and electrification counteract, and could potentially neutralize, growth at the system level. Energy efficiency in the forms of weatherization and operational and process efficiency will reduce the amount of energy that is required to accomplish specific tasks and thereby

[37] Owens Direct at 40.
[38] *Id*.

will reduce GHG emissions. Weatherization, in particular, will reduce GHG emissions in buildings that are served by gas and will also facilitate lower-cost electrification by reducing buildings' heating and cooling needs. Electrification of weatherized buildings will then further reduce GHG emissions.

Q. Do the Companies agree that NPAs such as energy efficiency, demand response, and electrification can mitigate the need for capital investments?

A. The Companies present a range of views regarding NPAs' potential to mitigate the need for capital investments. WGL states that "[t]o the extent that these [energy efficiency and demand response] programs are materially reducing customer demand in particular locations, certain upgrade projects could be minimized, delayed or eliminated"[39] and "[i]f reduced demand is indicated, replacement plans may consider reduced pipe size and/or targeted abandonment."[40] BGE discusses various NPAs. For example, BGE states that "[a] gas demand response program would provide a process to have gas customers interrupt or reduce gas usage when the Company needs to decrease gas loads to preserve system and supply capacity" and, "By lowering gas loads, there may be an opportunity to reduce gas delivered by the system, decrease peak shaving facilities' requirements, and/or lessen the strain on the Company's gas system."[41] In contrast, Columbia states that "[w]ith regard to new investments unrelated to safety, NPAs, such as Columbia's energy efficiency program have limited to no effect on the Company's planned infrastructure investment."[42] Chesapeake says that the need for energy "is a national issue which requires long-term planning for reliable, resilient and affordable sources," adding,

[39] Direct Testimony of Kevin M. Murphy, WGL at 35 (Feb. 9, 2026) [hereinafter "Murphy Direct"].
[40] *Id*.
[41] Owens Direct at 73.
[42] Kempic Direct at 16.

"Chesapeake supports the evaluation of NPAs, and all energy sources and delivery systems, to ensure they meet each of those criteria. NPAs, when assessed on a case-by-case basis and incorporating life-cycle emissions, could be a good addition in an environment of ever-increasing energy needs."[43]

I agree that long-term planning is essential, especially when contemplating programmatic NPAs that would be most effective when sufficient time is allotted for their deployment. Indeed, this has been a key finding in jurisdictions that have used non-wires approaches to address electric system constraints. Yet UGI states that it "does not offer or intend to offer any of these programs within Maryland for the foreseeable future"[44] and posits, without supporting evidence, that "NPAs should not affect capital planning projects, unless they result in a customer fully leaving the system."[45]

Q. Can you say more about best practices for assessment and planning for NPAs based on what electric utilities have learned?

A. Certainly. I co-authored a report on this topic that considered the role that energy efficiency, demand response, distributed generation, and other "non-*wires* alternatives" can play in deferring electric utilities' investments in the transmission and distribution systems.[46] The findings in this report are translatable to utilizing non-*pipeline* alternatives in the gas sector. The report both summarizes roughly a dozen examples and provides more detailed case studies of a handful of those. While the report focused primarily on energy efficiency, electrification and demand response are no less relevant and our

[43] Direct Testimony of Shane Breakie, Chesapeake at 15 (Feb. 9, 2026).
[44] Rogers Direct at 47.
[45] *Id.* at 46.
[46] Chris Neme & Jim Grevatt, Energy Efficiency as a T&D Resource: Lessons from Recent U.S. Efforts to Use Geographically Targeted Efficiency Programs to Defer T&D Investments. Northeast Energy Efficiency Partnerships (Jan. 9, 2015), https://neep.org/sites/default/files/products/EMV-Forum-Geo-Targeting_Final_2015-01-20.pdf.

findings apply equally to those NPAs.

Q. What did those examples suggest is required if energy efficiency, demand response, and electrification are to be useful in deferring gas system capital investments?

A. A key finding in the report was that "[o]ne of the keys to realizing the full benefits that efficiency, demand response, distributed generation, storage and/or other non-wires solutions can provide is ensuring that they can deployed with sufficient lead time to defer T&D [transmission & distribution] investments."[47] This only makes sense, and suggests that gas utility planning should forecast potential constraints well in advance of when they might occur. It also supports a recommendation that programmatic NPAs should be assessed and implemented early to avoid situations where they are no longer viable due to the time required to generate participation in them. There are, potentially, other benefits to the early deployment of NPAs. Consider the experience of ConEd, which began "using geographically targeted energy efficiency to defer or avoid T&D investments…in 2003, when growth in demand was causing a number of Con Ed's distribution networks to approach their peak capacity."[48] Con Ed found that:

> [U]sing DSM to defer projects bought time for demand uncertainty to resolve, leading to better capital decision making. Moreover, widespread policy and cultural shifts favoring energy efficiency may further defer some projects to the point where they are never needed…In fact, Con Edison has projected that in the absence of this program it would have installed up to $85 million in capacity extensions that may never be needed.[49]

[47] *Id.* at 62.
[48] *Id.* at 27.
[49] Chris Gazze et al., Con Ed's Targeted Demand Side Management Program: Replacing Distribution Infrastructure with Load Reduction, Consolidated Edison Company of New York at 117–129 (2010), https://www.aceee.org/files/proceedings/2010/data/papers/2059.pdf.

Q. What would a planning process that gives full credence to NPAs look like?

A. One example we looked at in the report is the Vermont System Planning Committee ("VSPC"), which is described as:

> [A] collaborative process, established in 2007, for addressing electric grid reliability planning. Its purpose is ensure all options to solve grid reliability issues get full, fair and timely consideration, and the most cost-effective solution gets chosen, whether it is a poles-and-wires upgrade, energy efficiency, demand response, generation, or a hybrid."[50]

The VSPC brings together different disciplines, including transmission & distribution system and non-wires planning and implementation experts, on a regular basis to fulfill its mission. In the VSPC it is recognized that grid planners are not the ones who are best situated to determine how much and how fast energy efficiency and demand response can be deployed. The grid planners forecast the need, and the energy efficiency and demand response experts determine what is possible. Together, these various experts devise the least-cost approach to meeting system needs.

Q. Should the Commission similarly expect NPA planning to be done by energy efficiency, demand response, and electrification experts, rather than utility pipeline engineers?

A. Absolutely, and I note here that none of the Companies' witnesses appears to have any direct experience with planning or implementing NPAs. The Companies' cases are presented by witnesses without expertise on energy efficiency, demand response, and electrification, and the Commission should find that these witnesses do not have the requisite expertise to discuss these topics. In implementing the electrification pilot

[50] About Us, Vermont System Planning Committee (last visited Apr. 30, 2026), https://www.vermontspc.com/about-us.

program discussed below, as well as other NPAs, the Commission should require the Companies to rely on industry professionals who do have deep expertise with NPAs, and the Commission should appoint a staff advisor and/or Public Utility Law Judge to assess the Companies' regular reports describing their implementation of NPA programs.

Q. For any NPA to provide meaningful benefits, does it require all customers in a locale to exit the gas system, as asserted by UGI?

A. Not at all. While UGI maintains that "NPAs should not affect capital planning projects, unless they result in a customer fully leaving the system,"[51] that is far too narrow a view of what NPAs can achieve and is unsupported by evidence. The condition that is driving the capital project determines how much capacity or throughput reduction is required. If the need is purely capacity-related, then only enough customers must participate in the NPA—whether that NPA is electrification, geothermal, energy efficiency, demand response, or others—to achieve the needed capacity reduction. In a case where the goal is to retire a section of main, then all customers served by that main would need to exit the system.

A. Electrification NPA

Q. Can you describe the Companies' claims that customers have not, by and large, been interested in electrifying to exit the gas system?

A. WGL says: "Under its STRIDE 3 Plan, the Company has sent approximately 1,500 notices to customers requesting information about their electrification plans and will continue to send these notices. To date, only one customer has indicated that they

[51] Rogers Direct at 46.

electrified through this process."[52] BGE says similarly that:

> "BGE Operation Pipeline specifically ask existing gas customers whether they are interested in disconnecting from the gas system through electrification or other means at the time BGE is entering their community to perform the work. A paucity of customers have demonstrated interest in doing so and even fewer have taken the steps to opt out of continuing to receive gas service, demonstrating a lack of interest by customers to date in leaving the gas system, at least leaving it in its entirety."[53]

Q. Did BGE clearly offer financial incentives to customers to encourage them to electrify?

A. No. BGE states that it "does not offer financial incentives to BGE customers to discontinue energy service from BGE, gas or electric."[54] In its Operation Pipeline communication to customers, BGE merely says:

> Your electrician can help you understand the costs of fully electrifying your property, which means replacing all your gas appliances with electric appliances (for example, replacing a gas furnace and central air conditioning with an electric heat pump that provides both heating and cooling) and there may be state and federal rebates and tax credits available to assist customers with the costs of transitioning to full electrification. For more information, see BGE's EMPOWER webpage (https://bgesmartenergy.com/) and the Maryland Energy Administration's webpage about the federal Inflation Reduction Act (https://energy.maryland.gov/Pages/HOMESRebates.aspx).[55]

Neither the Companies nor the Commission should draw any conclusions about customers' interest in electrification on the basis of BGE's meager Operation Pipeline experience.

Q. Are these experiences with the Companies' STRIDE programs sufficient to gauge

[52] Murphy Direct at 59.
[53] Owens Direct at 32.
[54] BGE Resp. to Sierra Club Data Request 2-15.
[55] BGE Resp. to Sierra Club Data Request 1-66, Attach. 1.

the potential for electrification to enable the retirement of localized gas mains and services?

A. Not at all. The Companies appear to have simply asked questions in the context of a general survey about pipe upgrade projects. Gauging customer interest and assessing the potential for localized electrification projects should be done in a context that is designed to understand the barriers that customers might face and develop effective methods to overcome them. We can look at the utility energy efficiency programs for a better understanding of what is required. Utility energy efficiency programs operate to make it easier for customers to take actions that they are not taking in the absence of the programs. From the customers' standpoint, many of these actions make sense on the basis of economics and/or reliability—but they still tend not to pursue the actions on their own. Consider the example of home weatherization, where adding insulation to an older home is cost-effective purely from the customers' point of view—yet few customers go out and of their own volition pursue such projects. In program parlance, this is because there are "barriers" that prevent customers from acting on their own—factors such as lack of information, lack of access to qualified contractors, and lack of capital to cover the cost of such a project, even when it will pay for itself over a period of years. In Maryland, the Commission has required utilities to implement EmPOWER programs to overcome these barriers, and a programmatic approach will clearly be required to advance electrification.

Q. Why do you say that a programmatic approach is required?

A. What I understand, based on the Companies' narratives, is that under STRIDE they are, effectively, asking customers if they want to get off the gas system and telling them what they might have to do for that to occur. The Companies do not appear to be offering

information about the benefits of electrification or mounting any kind of campaign to communicate those benefits more broadly to a localized area where they are planning to implement STRIDE investments. They do not appear to be enlisting HVAC contractors or appliance detailers to offer reduced costs based on bulk purchasing that might be available if a larger group of customers participated, or to steer customers towards financing to allow them to pay for improvements, such as service panel upgrades and electric appliances, over time. In other words, the Companies do not appear to be taking any actions to identify or overcome the barriers that customers face. Without that level of support, it is unreasonable to simply conclude that customers are not interested in electrification—all that can be concluded is that the Companies have not adequately tested the extent to which customers might electrify, given sufficient support in overcoming the barriers to doing so.

Q. What would a reasonable programmatic electrification approach consist of?

A. The Commission should require each of the Companies to develop—and submit for approval in a fully litigated proceeding—an electrification pilot program, targeted to five geographic neighborhoods over the next five years, subject to criteria laid out by the Commission. In order to identify these five areas, the Commission should require the Companies to assess specific geographic locations and rank them for their applicability for participation in electrification pilot programs. The Commission should provide the Companies with guidance for conducting this ranking process. As noted in my recommendations earlier, I suggest that this ranking process should include at least the following steps:

a. Identify and catalogue sections of distribution main and services that could

be isolated from the system by age, condition, and anticipated date by which major repairs or replacements are targeted (presumably this is already an ongoing activity).

b. Overlay this catalogued list with geographic information regarding: (1) the types, age, and condition of buildings and other structures served and the likely gas end uses found in those structures; (2) the Companies' ability to physically isolate each segment from the distribution system such that it could potentially be retired; (3) the expected level of effort required for pipeline replacement based on factors such as the age and condition of pipe, excavation and surface conditions (e.g., would the level of effort be greater in dense urban areas?); and (4) the relative level of risk of facing unexpected conditions and increased replacement costs.

c. Rank each of the identified sections by these criteria to determine which are most suited for implementation of pilot electrification programs. For example, sections that would require a higher level of effort or cost for pipe replacement with a greater level of risk, or sections that serve easier-to-electrify structures, would be ranked more favorably for pilot electrification than sections serving difficult-to-electrify structures.

This ranking should highlight geographic areas that can reasonably be isolated from the rest of the gas system without compromising the integrity of other sections, and geographic sections with older main that is slated for replacement, but where replacement is not imminently required for safety reasons. Sections should also be prioritized for electrification when the total expected costs of pipeline replacement are relatively high

compared to other areas, such as in dense urban areas where multiple utilities may be underground in close proximity.

Q. Should the characteristics of the structures being served by gas in each section be considered in the selection process?

A. Yes. The characteristics of the structures being served—and the predominant gas end uses in them—will have a material effect on the relative ease of electrification, as well as its cost. Geographic areas where the estimated costs of electrification are relatively lower should be prioritized as pilot candidates. Factors to consider in assessing these costs include the age and condition of the building stock in that area, whether most buildings are owned or rented, whether there are densely populated buildings with many units that would need to be electrified, the extent to which a given area is already electrified versus heavily reliant on gas, the extent to which service panel upgrades would be needed to electrify buildings in a given area, and the extent to which electric utilities have noted that they have excess headroom in a given area versus whether electrification would require significant and time-consuming electric grid upgrades.

Q. How should the Commission consider approval of the pilot programs the Companies propose?

A. Procedurally, the Commission should open a new evidentiary proceeding where the Companies' pilot programs can be evaluated and where interested parties can evaluate the evidence presented in support of the pilot programs. Parties should have the opportunity to ask discovery of the Companies and to prepare and present their own evidence. The Commission should then approve, disapprove, or approve with modifications the Companies' proposed pilot programs. Once approved, the Commission should review

these programs' implementation, as described below.

Q. Will it be enough for the Companies to develop and implement the pilot programs you recommend?

A. No. The purpose of the pilot programs is for the Companies to gather information about the ability of electrification and NPAs generally to reduce gas system costs and mitigate GHG emissions. The programs should be independently evaluated, both in terms of impact and process, beginning in the second year of implementation. Beginning in year three, the Commission should require the Companies to propose additional geographic areas for electrification, using modified programs that reflect learning from the pilots. There should be staggered tranches of geographic electrification following the pilot programs that begin in different years.

Q. What information should the Companies gather while developing their electrification pilot programs?

A. In order to ensure effective pilot electrification programs, the Commission should direct the Companies to develop a better understanding of the specific activities that are required to drive electrification. Importantly, the development of such pilots must be led by experienced professionals with a deep understanding of the programmatic approaches to energy efficiency that are directly applicable to electrification campaigns. Running an electrification campaign, or any type of NPA, is a different line of work that requires different expertise than what the Companies have typically included in their planning divisions. Development of a viable electrification pilot could, among other things, include the following:

- Identification of research questions for the pilot and development of data tracking

tools to ensure that those questions are answered;

- Stakeholder/community engagement to understand the needs and values of potential participants;
- Identification of community leaders who could support information campaigns and engender community, rather than sole actor engagement;
- Informational materials and community meetings to promote the benefits of targeted levels of participation;
- Information to convey that there is no loss of appliance usefulness with modern electrical appliances—i.e., participants will not be required to make sacrifices;
- Suitable financial incentives, including access to financing if needed, and clear communication of participant costs and benefits;
- Clearly identified point(s) of contact for the project who can answer questions as needed and support customers in the process;
- Streamlined access to contractors who carry out the work; and
- Quality Assurance/Quality Control processes to ensure customer satisfaction.

Q. Is the list you provided sufficient to design a pilot electrification program?

A. Not at all. This list is meant to be illustrative rather than prescriptive. The important point I am trying to make is that the Commission should not rely on the Companies to design and implement electrification pilots on their own.

Q. What recommendations do you have for ensuring Companies' electrification pilot programs are implemented effectively?

A. First and foremost, the Commission should not rely only on the Companies' viewpoints in determining the value and success of the electrification pilot programs. The Companies' shareholders stand to profit from putting pipe in the ground and, regardless of intent, will be biased towards that outcome. Further, in the instant case, the Companies

have not included the perspectives of any witnesses with expertise in NPA design and implementation—even though, arguably, at least BGE and WGL have energy efficiency program expertise in-house due to their EmPOWER programs. Therefore, moving forward, the Commission should designate a staff advisor and/or Public Utility Law Judge to serve as NPA implementation experts. The Commission should require the gas companies to file regular semi-annual reports describing the experience and results of their pilot electrification projects and energy efficiency and demand response programs. The Commission's designated NPA implementation experts should review the semi-annual reports and make recommendations to the gas companies and the Commissioners regarding the programs' implementation success and potential improvements.

B. Energy efficiency, demand response and weatherization NPAs

Q. For which customers should the Companies aim to develop these other forms of NPAs?

A. NPAs such as energy efficiency, demand response, and weatherization should be targeted toward geographic areas that the Companies perceive as harder-to-electrify. In those areas, the Commission should require the Companies to develop programs for informing customers about the value of these types of NPAs, provide resources so customers can learn how to implement these NPAs, and provide incentives such as reduced contractor pricing so that customers are more affordably able to implement these NPAs. As an example, in its Home Performance program under EmPOWER, BGE offers the services of a free "Energy Coach." Energy Coaches "are home performance experts ready to put their expertise to work for you. This service—available at no additional cost—makes it

easy to request prompt, courteous help tailored to your specific needs."[56] Making easily accessible program coaching available to potential NPA participants could boost the willingness of customers to participate.

Q. Do BGE's and WGL's experiences with implementing EmPOWER in recent years provide information about how energy efficiency NPAs can reduce load?

A. Yes, but it is critical to understand that EmPOWER was, at its inception, conceived as an electric program designed to mitigate the growing electricity demands of the early 2000s. In the words of the Commission:

> In 2008, faced with dramatic rate increases due to the removal of price caps established at the time of deregulation, as well as PJM projections of rolling blackouts in the State by 2011 due to generation shortages and reliability problems, the Maryland General Assembly passed legislation to meet specific energy efficiency, conservation, and demand response targets by the end of 2015, culminating in the EmPOWER Maryland Energy Efficiency Act of 2008. While the EmPOWER Maryland Act was officially adopted in 2008, the value of energy efficiency as a least-cost resource is hardly a new concept. For more than two decades – and before the enactment of the EmPOWER legislation – the Commission has been tasked with the statutory duty to "require each gas company and electric company to establish any program or service that the Commission deems appropriate and cost effective to encourage and promote the efficient use and conservation of energy.[57]

While EmPOWER contemplated gas efficiency, specific savings goals were not implemented until much later, at which time the affected gas utilities were given an annual therm savings goal. This was changed to a GHG emissions reduction goal in 2024.

[56] Ask an Energy Coach, BGE (last visited Apr. 30, 2026), bgesmartenergy.com/residential/help-me-save/home-performance/ask-coach.

[57] Case No. 9153, *In the Matter of Potomac Edison Company d/b/a Allegheny Power's Energy Efficiency, Conservation and Demand Response Programs Pursuant to the Empower Maryland Energy Efficiency Act of 2008*, Order No. 87082 at 18 (July 16, 2015).

The EmPOWER experience is valuable, but it is not directly applicable to understanding how NPAs can be used to mitigate expansion of the gas system, because doing so was never a specific goal of EmPOWER.

Q. How would NPA goals be structured differently than EmPOWER's prior gas savings goals, which were expressed in either therms or CO_2e?

A. EmPOWER, originally conceived as a tool to mitigate growing demands on the electric grid, had both energy and capacity savings requirements, recognizing that both matter. However, when WGL began implementing gas saving programs, its goals were only expressed in terms of annual energy savings—peak capacity was not addressed. In fact, while the electric utilities have always reported both MWh and peak MW savings, there is no comparable reporting of peak savings for the gas utilities.

Q. Why would tracking and reporting peak gas savings matter in the context of energy efficiency NPAs?

A. Peak capacity needs for gas systems are based on the ability to supply and move the amount of gas that would be needed on a design day—effectively the coldest day that might be expected in a year. WGL says, "[t]he Design Day is a 24-hour period of demand that is used as a basis for planning gas capacity requirements."[58] BGE states that it "must have sufficient pipeline capacity contracted to meet the maximum daily demands of firm service customers on what the Company…forecasts to be the most extreme cold weather day(s),"[59] and relatedly, that it "ensures system capacity and reliability for gas customers in all weather conditions down to Design Day conditions."[60] This is conceptually exactly

[58] Murphy Direct, Ex. 2 at 5.
[59] Direct Testimony of Brian M.W. Scheerer, BGE at 22 (Feb. 9, 2026).
[60] Owens Direct at 40.

why the electric utilities track and report megawatt (MW) savings—because the peak demand dictates what the capacity of the grid needs to be, and that, in large part, determines capital investment requirements. But there has been no similarly articulated goal for the gas utilities, and therefore the peak day gas capacity savings have not been tracked and reported, and the programs have not been managed with an eye to maximizing those benefits.

Q. Do you have recommendations for how the Commission should direct the Companies to compare the costs of NPAs to traditional capital investments?

A. Yes, and this is where consideration of NPAs could vary considerably from the cost-effectiveness tests that have been required under EmPOWER—or even under the Commission's developing distributed energy resources ("DER") cost-effectiveness protocols. As a basic principle, rather than using avoided costs calculated on a unit basis that are generalized to the entire gas system, the forecast cost of the specific capital investments should be the baseline against which specific NPA alternatives are compared. However, in the near term, when NPA costs have not yet been well-defined due to a lack of experience with implementing these programs, it will be critical to move forward with NPA pilot programs nonetheless. The experience gained in these electrification pilots will inform estimates of NPA program costs in the future, which can be used in assessing their cost benefits compared with putting new pipe in the ground.

Q. **How would this differ from how cost-effectiveness has been determined under EmPOWER?**

A. In EmPOWER, cost effectiveness is determined using projections of "avoided costs." These are fractional costs developed at the level of a therm to recognize that each therm

avoided contributes a small amount towards benefits that, in aggregate, can be quite large. However, these avoided costs may not fully capture the value of deferring capacity-related investments. In an NPA framework, as the need for specific capital projects is identified, there should also be an assessment of the potential for NPAs to defer or completely offset that capital investment—and the forecast costs of each alternative must be compared. Importantly, as in EmPOWER, the social cost of carbon must be included in the comparison to recognize that greater carbon emissions will occur using gas than electricity with a decarbonizing grid.

Q. Are there other NPAs the Commission should require the Companies to explore?

A. Yes. The Companies should assess the opportunity to provide neighborhood geothermal energy systems in lieu of extending piped gas. Other gas utilities are already exploring the opportunity to apply their undergrounding and piping expertise to geothermal energy, such as Vermont Gas. This utility is "teaming up with two local affordable housing developers to experiment with using geothermal energy to heat a new neighborhood…without fossil fuels."[61] In addition to the climate benefits, Champlain Housing Trust says that "[t]he efficiency of the geothermal system allows us to stabilize that energy cost that we're including in the rent, so we won't need to be looking at larger rent increases." [62] This is a win-win, and I recommend the Commission direct the Companies to pursue similar efforts.

[61] Abagael Giles, *Gas utility and housing trust to build Vermont's first ever geothermal-heated neighborhood*, Vermont Public (Mar. 30, 2026), https://www.vermontpublic.org/local-news/2026-03-30/gas-utility-and-housing-trust-to-build-vermonts-first-ever-geothermal-heated-neighborhood.
[62] *Id*.

Q. Briefly looking at Issue 11, is there anything you would like to add about the costs of pipeline repairs as compared to replacements?

A. Yes, while I am not analyzing the Companies' policies for pipeline repairs in detail, I do want to note that there can be significant cost benefits to repairing—rather than replacing—segments of pipe that may not be good candidates for NPAs, such as pipe segments that pose more pressing safety risks. It is important for this Commission to bear in mind the evidence that pipeline repairs are significantly lower cost for ratepayers than wholesale replacements. For example, an analysis conducted by the D.C. Department of Energy & Environment ("DOEE") in the neighboring district of D.C.—which is part of WGL's service territory—revealed that "the one-time cost of [pipeline] repairs to ratepayers" is "between one-tenth and one-hundredth of the cost of pipeline replacement."[63] To really ensure it is considering costs and affordability in Case No. 9707, the Commission should require the Companies to make a showing that any pipeline replacements are more cost-effective than repairs. For example, the Commission could require each Company to document its protocols for deciding whether to repair or replace a pipe that appears to present a safety risk; to file that protocol with the Commission; and to make a written record of how that protocol was followed in each particular repair or replace decision. This would be consistent with the Next Generation Energy Act's requirement that, to recover under the STRIDE program, a gas company must provide "an analysis that compares the costs of proposed replacement projects with alternatives to replacement, including leak detection and *repair*."[64]

[63] Pub. Serv. Comm'n of D.C., Case No. 1175, *WGL's Application for Approval of PROJECTpipes III Plan*, Strategic Electrification in Washington, DC: Neighborhood Case Studies of Transition from Gas to Electric-based Building Heating, DC Dep't of Energy & Env't at 6 (Dec. 14, 2022).
[64] MD. PUB. UTIL. CODE ANN. § 4–210(e)(2)(VI) (emphasis added).

VII. SUMMARY OF RECOMMENDATIONS

Q. Please summarize your recommendations for the Commission.

A. My recommendations are as follows:

1. As an NPA, I recommend the Commission require the Companies to develop robust electrification pilot programs that will provide comprehensive information about the ability of electrification to defer or outright avoid capital investments in the gas system, and to support strategic retirement of mains and services that are targeted for replacement. As discussed below, each gas company should:

    a. Identify and catalogue sections of distribution main and services that could be isolated from the system, grouping them based on age, condition, and anticipated date by which major repairs or replacements are targeted (presumably this is already an ongoing activity).

    b. Overlay this catalogued list with geographic information regarding (1) the type, age, and condition of buildings and other structures served and the likely gas end uses found in those structures; (2) the Companies' ability to physically isolate each segment from the distribution system such that it could potentially be retired; (3) the expected level of effort required for pipeline replacement based on factors such as the age and condition of pipe, excavation and surface conditions (e.g., would the level of effort be greater in dense urban areas?); and (4) the relative level of risk of facing unexpected conditions and increased replacement costs.

    c. Rank each of the identified sections by these criteria to determine which are most suited for implementation of pilot electrification programs. For

example, sections that would require a higher level of effort for pipe replacement with a greater level of risk, or that serve easier-to-electrify structures, would be ranked more favorably for pilot electrification than sections serving difficult-to-electrify structures.

d. Submit its transparent list of these ranked sections to the Commission with a proposal to develop and implement five neighborhood electrification pilot programs on the basis of this ranking and analysis over the next five years.

2. As other NPAs, the Commission should require the Companies to propose new cost-effective non-equipment energy efficiency (e.g. weatherization) and demand response programs with measures specifically focused on reducing design day capacity requirements. These programs would be targeted to customers in sections of each company's distribution system that are ranked lower-priority locations for electrification due to factors such as the difficulty of isolating that section from the system, or the difficulty of electrifying due to end uses in the connected structures.

3. Approval of the Companies' proposed electrification pilot programs and energy efficiency and demand response programs should be considered in fully litigated proceedings that allow agencies and parties to promulgate discovery and develop and present evidence.

4. On an ongoing basis, the Commission should require the gas companies to file regular semi-annual reports describing the experience and results of the pilot electrification projects and energy efficiency and demand response programs.

5. As another NPA, the Commission should direct the Companies to pursue neighborhood geothermal pilot programs to better understand how geothermal can address building heating and cooling needs without the use of fossil fuels.

6. The Commission should designate a staff advisor and/or Public Utility Law Judge to serve as NPA implementation experts, review these semi-annual reports, and make recommendations to the gas companies and the Commissioners regarding the programs' implementation successes and potential improvements.

Q. Does this conclude your testimony?

A. Yes.

Exhibit JG-1: Curriculum vitae

Jim Grevatt

Managing Consultant

ENERGY FUTURES GROUP

Jim has 30 years of experience in energy efficiency, with a primary focus on residential and income-eligible program design and implementation. At Energy Futures Group Jim has advised regulators, program implementers, and advocates in two dozen states and provinces, and has provided expert witness testimony in fourteen of those jurisdictions, with a frequent emphasis on improving energy efficiency programs for customers in historically disadvantaged communities. Jim has hands-on experience with industry-leading approaches to designing and managing energy efficiency programs, including multi-family, low income, residential retrofit, new construction, HVAC, and efficient products programs. His in-depth knowledge of program operations and clear understanding of strategic thinking and planning ensure that programs achieve their desired market impacts. In past leadership roles at Efficiency Vermont, the DCSEU, and Vermont Gas, Jim had overall responsibility both for program design and operations.

jgrevatt@energyfuturesgroup.com (802) 373-2488 Hinesburg, VT

EXPERIENCE

Managing Consultant
Energy Futures Group, Hinesburg, VT
2013 - Present

Director, Targeted Implementation
Vermont Energy Investment Corp., Burlington, VT
2012 - 2013

Managing Consultant
Vermont Energy Investment Corp., Burlington, VT
2010 - 2012

Director, Residential Services
Vermont Energy Investment Corp., Burlington, VT
2005 - 2010

Manager, Energy Services
Vermont Gas Systems, S. Burlington, VT
2001 - 2005

Manager, Residential Energy Services
Vermont Gas Systems, S. Burlington, VT
1998 - 2001

Manager, HomeBase Retrofit Program
Vermont Gas Systems, S. Burlington, VT
1996 - 1998

Technical Specialist
Vermont Gas Systems, S. Burlington, VT
1994 - 1996

Associate Director and Technical Specialist
Champlain Valley Weatherization Program, Burlington, VT
1991 - 1994

EDUCATION

University of Illinois
B.F.A., University Honors
1982

SELECT PROJECTS

Southern Environmental Law Center

2015 - Present

Provided technical support to environmental and social justice advocates in the Carolinas, and ongoing participation in the Duke Energy EE Collaborative and Dominion South Carolina EE Advisory Group, as well as technical support for SELC staff regarding pre-pay programs and other policy issues.

Coalition of Maryland Energy Efficiency Advocates

2014 - Present

Prepared written comments and multiple appearances before the Commission to present evidence regarding Maryland utilities' 2015-2017, 2018-2020, 2021-2023, and 2024-2026 EmPOWER Maryland energy efficiency plans, and in additional proceedings related to utility goal setting, cost-effectiveness testing, best-practices in low-income programs, and energy efficiency financing.

Appalachian Voices

2026

Provided expert witness testimony in Virginia Electric and Power Co.'s application for approval of its 2025 DSM Update and its Virtual Power Plant pilot program.

Pennsylvania Utility Law Project

2025 - 2026

Prepared expert witness testimony in four electric utilities' Act 129 Plan dockets. Provided expert review and technical support for responsive comments regarding Act 129 Phase V Implementation Order and Plan Template.

Alliance for Affordable Energy

2025

Provided expert review and draft responsive comments regarding Entergy New Orleans' Implementation Plan for Program Years 16 Through 18 of the Energy Smart Program.

(continued on next page)

SELECT PROJECTS (continued)

Appalachian Voices, New Virginia Majority, and Virginia Organizing, Inc. 2025
Provided expert witness testimony in Virginia Natural Gas' application for a general rate increase and for authority to revise the terms and conditions applicable to natural gas service.

South Carolina Coastal Conservation League and Southern Alliance for Clean Energy 2025
Provided expert witness testimony in Dominion Energy South Carolina's Request for Approval of Pilot Demand Side Management Program for Income-Qualified, High-Use Residential Customers.

Appalachian Voices 2025
Provided expert witness testimony in Virginia Electric and Power Co.'s application for approval of its 2024 DSM Update.

Appalachian Voices 2025
Provided expert witness testimony in Appalachian Power Co.'s petition in the matter of establishing energy efficiency savings targets.

South Carolina Coastal Conservation League, Southern Alliance for Clean Energy, Vote Solar, and Upstate Forever 2025
Supported comment drafting regarding Duke Energy's request for approval of modifications to its DSM portfolio.

South Carolina Coastal Conservation League and Southern Alliance for Clean Energy 2025
Provided expert witness testimony on Dominion Energy South Carolina's 2025-2029 DSM Plan.

Appalachian Voices 2024
Provided expert witness testimony in Virginia Electric and Power Co.'s application in the matter of establishing energy efficiency savings targets.

West Virginia Citizen Action Group, Solar United Neighbors, and Energy Efficient West Virginia 2024
Provided expert witness testimony in Appalachian Power Company and Wheeling Power Company Petition for Review of EE/DR Programs, Approval of the Continuation of Certain Programs, the Approval of New Programs, and Authorization of an Increase in EE/DR Rider Rates.

South Carolina Coastal Conservation League and Southern Alliance for Clean Energy 2024
Provided expert witness testimony on the value of energy efficiency to mitigate rate impacts on vulnerable customers in Dominion Energy South Carolina's 2024 rate case.

Appalachian Voices 2024
Provided expert witness testimony in Virginia Electric and Power Co.'s application for approval of its 2023 DSM Update.

The Coalition for Affordable Utility Services and Energy Efficiency in Pennsylvania 2023
Provided expert witness testimony in Philadelphia Gas Works' Petition for Approval of Revised Demand Side Management Implementation Plan Fiscal Years 2025-2029.

Metropolitan Housing Coalition, Kentuckians for the Commonwealth, Kentucky Solar Energy Society, and Mountain Association 2023
Provided expert witness testimony in Kentucky Utilities Company and Louisville Gas and Electric Company's Application for Approval of a Demand Side Management Plan.

SELECT PROJECTS (continued)

South Carolina Coastal Conservation League, Southern Alliance for Clean Energy, and Sierra Club 2023
Provided expert witness testimony on energy efficiency levels incorporated in Dominion Energy South Carolina's 2023 Integrated Resource Plan.

Sierra Club and Earth Justice 2023
Provided expert witness testimony on electrification programs in Baltimore Gas and Electric Company's Application for an Electric and Gas Multi-Year Plan.

Sierra Club and Earth Justice 2023
Provided technical support for comments on Washington Gas Light Company's Application for Approval of Energy Efficiency Programs.

Appalachian Voices 2023
Provided expert witness testimony in Virginia Electric and Power Co.'s application for approval of its 2022 DSM Update.

Natural Resources Defense Council and Sierra Club 2022 - 2023
Provided expert witness testimony in Public Service Company of Colorado's Demand-Side Management and Beneficial Electrification Strategic Issues proceeding.

British Columbia Sustainable Energy Association 2022
Provided expert review, discovery, and evidence regarding Fortis BC's proposed RNG Gas Connections service.

The South Carolina Coastal Conservation League, Southern Alliance for Clean Energy, and Vote Solar 2022
Provided expert witness testimony describing the need for energy efficiency programming as a result of Duke Energy Progress' proposed rate increase.

The South Carolina Coastal Conservation League and Southern Alliance for Clean Energy 2022
Provided expert witness testimony critiquing Dominion Energy South Carolina's petition for new natural gas efficiency programs.

Appalachian Voices 2022
Provided expert witness testimony in Virginia Electric and Power Co.'s application for approval of its 2021 DSM Update.

Natural Resources Defense Council and Sierra Club 2021
Provided expert witness testimony in Tri-State Generation and Transmission Association's 2020 Electric Resource Plan Proceeding.

West Virginia Citizen Action Group, Solar United Neighbors, and Energy Efficient West Virginia 2021
Provided expert witness testimony in Monongahela Power Company and the Potomac Edison Company Petition and General Investigation to Determine Reasonable Rates and Charges.

Natural Resources Defense Council and Sierra Club 2021
Provided expert witness testimony in Public Service Company of Colorado's 2021 Electric Resource Plan and Clean Energy Plan proceeding.

The Institute for Sustainable Communities 2022
Partnered with Common Spark Consulting to develop an energy efficiency action plan to support increased energy efficiency programs for disadvantaged communities of the Southeast Florida Regional Climate Change Compact.

SELECT PROJECTS (continued)

Natural Resources Defense Council, Sierra Club, and Southwest Energy Efficiency Project 2021
Provided expert witness testimony to the Public Utility Commission of Nevada regarding the Application of Southwest Gas Corporation for Approval of a Conservation and Energy Efficiency Plan for the Years 2022, 2023 and 2024.

Energy Efficient West Virginia and West Virginia Citizen Action Group 2021
Provided expert witness testimony in Appalachian Power Company and Wheeling Power Company's Petition regarding EE/DR program approvals.

Appalachian Voices 2021
Provided expert witness testimony in Virginia Electric and Power Co.'s EM&V proceeding and its application for approval of its 2020 DSM Update.

The South Carolina Coastal Conservation League, Southern Alliance for Clean Energy, Upstate Forever, Sierra Club, and Natural Resources Defense Council 2021
Provided expert witness testimony critiquing the market potential study used in Duke Energy Carolinas and Duke Energy Progress 2020 Integrated Resource Plans.

The Coalition for Affordable Utility Services and Energy Efficiency in Pennsylvania ("CAUSE-PA") 2020 - 2021
Provided expert witness testimony in support of robust low-income efficiency programs in Philadelphia Gas Works Petition for Approval of Demand-Side Management Plan and PECO, Duquesne, and First Energy Act 129 Phase IV Plan proceedings.

Appalachian Voices and Natural Resources Defense Council 2020
Provided expert witness testimony in Virginia Electric and Power Co. Phase VIII DSM Program Application.

Citizens Action Coalition of Indiana 2020
Provided expert witness testimony in Duke Energy Indiana 2020-2023 DSM Plan.

The Consumers' Association of Canada (Manitoba) and Winnipeg Harvest 2019 - 2020
Provided expert witness testimony in the Efficiency Manitoba 2020/23 Efficiency Plan proceeding.

British Columbia Sustainable Energy Association 2017 - 2020
Provided expert review, discovery, and evidence in DSM-related aspects of multiple proceedings with Fortis BC, BC Hydro, and FEI.

Southern Alliance for Clean Energy and Earthjustice 2019
Provided expert witness testimony in the Florida Energy Efficiency and Conservation Act goal setting proceeding.

Energy Efficient West Virginia and West Virginia Citizen Action Group 2019
Provided expert witness testimony in Appalachian Power Company and Wheeling Power Company's Petition regarding EE/DR program approvals.

Alliance for Affordable Energy and Natural Resources Defense Council 2019 - 2021
Provided expert technical support for Louisiana Public Service Commission EE Rulemaking and Entergy New Orleans DSM Plan.

SELECT PROJECTS (continued)

New Jersey Clean Energy Program 2015 - 2020
Planning support for NJCEP implementation team. Facilitated focus groups, worked with Board of Public Utilities Staff, program administrators, utility companies, and other stakeholders to identify opportunities to improve NJCEP strategic direction and increase benefits for ratepayers. Lead author drafting strategic plan.

Natural Resources Defense Council and Sierra Club 2017 - 2020
Provided expert witness testimony in Public Service Company of Colorado's Strategic Issues, 2019-2020 DSM Plan, and 2021-2022 DSM Plan proceedings.

Natural Resources Defense Council and Sierra Club 2018 - 2021
Provided expert witness testimony in Nevada Energy Company's 2019-2038 Triennial Integrated Resource Plan and 2019-2021 Energy Supply Plan, and 2019 and 2020 DSM Update proceedings and participated in stakeholder collaboratives.

Environmental Law & Policy Center and Iowa Environmental Council 2018
Provided expert witness testimony in DSM proceedings regarding MidAmerican Energy Company's and Interstate Power and Light's 2019-2023 Energy Efficiency Plans.

Pueblo County Colorado 2018
Provided expert witness testimony in DSM proceedings regarding Black Hills Energy Company's 2019-2021 DSM Plan.

Sierra Club 2017 - 2018
Provided expert witness testimony in proceedings regarding Kentucky Power Company's DSM programs and cost-effectiveness.

California Alternative Energy and Advance Transportation Financing Authority 2017 - 2019
Provide technical assistance on development of commercial energy efficiency financing pilot.

Energy Efficiency for All 2015 - 2020
Expert technical support for affordable multifamily energy efficiency advocacy in Pennsylvania and Virginia. Worked with a coalition of energy efficiency and affordable housing advocates to shape advocacy efforts with utilities and regulators.

Regulatory Assistance Project 2016
Researched and co-authored with Chris Neme: The Next Quantum Leap in Efficiency: 30 Percent Electric Savings in Ten Years, addressing program and policy questions related to doubling the best efficiency program results.

Natural Resources Defense Council 2013
Provided expert witness testimony in support of NRDC's intervention in Ameren Illinois' 2014-2016 energy efficiency plan. Testimony demonstrated that Ameren would be capable of capturing significantly greater efficiency savings than it had proposed.

Regulatory Assistance Project 2015
Expert technical support for DSM in China. Worked with various government agencies and grid companies, as well as advocacy organizations to provide technical support related to advancing DSM and energy efficiency in China.

Vermont Public Service Department 2014 - 2015
Evaluation of Clean Energy Development Fund. Conducted interviews of staff and key stakeholders under contract to NMR and prepared memo outlining process findings and recommendations.

SELECT PROJECTS (continued)

Evaluation of Efficiency Maine Low-Income Multi-Family Weatherization Program 2014 - 2015
Responsible for program staff and building owner interviews and process evaluation under contract to NMR and Efficiency Maine.

Northeast Energy Efficiency Partnerships 2014
Researched and co-authored meta-study of the use of energy efficiency to defer T&D investments.

Northeast Energy Efficiency Partnerships 2014
Researched and co-authored meta-study of ductless heat pump performance and market acceptance.

New Hampshire Electric Co-op 2014
Conducted assessment of the co-op's environmental and social responsibility programs' promotion of whole building efficiency retrofits, cold climate heat pumps and renewable energy systems. Presented recommendations to the co-op Board.

High Meadows Fund 2014
Co-authored a study assessing the market viability of "High Performance Homes" in Vermont.

Energy Savings Potential Study, Delaware Department of Natural Resources 2013 - 2014
Led narrative development for the residential programs for a study of the energy efficiency savings potential in Delaware.

Regulatory Assistance Project 2013 - 2017
Provided technical support to energy efficiency advocates in proceedings in Maryland, Mississippi, and Missouri.

Better Buildings Solutions Center, U.S. Department of Energy 2013 - 2014
Energy Futures Group's lead author in drafting and reviewing web content for ten how-to "handbooks" detailing proven approaches to designing and implementing residential retrofit efficiency programs.

Utility Program Benchmarking 2013
Led research on behalf of a large IOU to compare the cost of saved energy across ~10 leading utility portfolios. The research sought to determine if there are discernible differences in the cost of saved energy related to utility spending in specific non-incentive categories, including administration, marketing, and EM&V.

Research on Trends in Multi-Family, HVAC, and New Construction Programs 2013 - 2014
Developed an analysis of emerging program trends on behalf of a leading energy efficiency industry firm.

Efficiency Power Plant, Regulatory Assistance Project 2013
Partnered with RAP to develop a demonstration tool to show how energy efficiency measures can be used to mitigate air quality impacts related to power production.

Natural Gas Energy Efficiency Analysis, the Green Energy Coalition 2013
Provided analytical support to demonstrate in testimony that Enbridge Gas could reduce the scale of its proposed pipeline expansion by implementing aggressive energy efficiency programs.

Targeted Implementation, VEIC 2012 - 2013
Responsible for market analysis and strategic planning for a new division expanding VEIC's energy efficiency program implementation projects.

SELECT PROJECTS (continued)

DC Sustainable Energy Utility 2011 - 2012
Led the planning and startup implementation of Residential programs for the DC SEU, including single and multi-family and retail market programs. Led the development of the initial portfolio-level Annual Plan. Led client and partner interactions around planning and policy development. Member of DC SEU Senior Management Team.

EmPOWER Maryland Critical Program Review 2010 - 2012
Expert consultant to the Maryland Office of Peoples' Counsel in EmPOWER Maryland hearings regarding utility energy efficiency planning and reporting. Represented the OPC in stakeholder meetings that informed the current 2012-2014 EmPOWER plans. Multiple appearances before the Maryland Public Service Commission.

Efficiency Vermont 20-Year Forecast of Efficiency Potential 2010 - 2011
Senior Advisor in developing the forecast scenarios that led to significantly increased efficiency investment in Vermont.

Efficiency Vermont Residential Programs 2005 - 2010
Directed 100% growth in program budgets to nearly $10M annually. Responsible for strategic direction, leadership, and results for Efficiency Vermont's award-winning residential retrofit, new construction, retail, and low-income programs. Supported excellence in a staff of 30.

Vermont Gas Systems Efficiency Program Leader 2001 - 2005
Directed strategic planning and program operations that led to six programs and portfolio as a whole being recognized as exemplary in Responding to the Natural Gas Crisis: America's Best Natural Gas Energy Efficiency Programs (ACEEE, 2003). Built contractor infrastructure and internal support to consistently meet program objectives. Led development of Annual Reports, planning and budgeting. Collaborated with Efficiency Vermont staff to develop a fuel-blind, state-wide, jointly offered residential new construction program.

Residential Retrofit Program Development 1994 - 2005
Enhanced design and performance of VGS' residential retrofit offerings by streamlining delivery and building strong relationships with contractors, homeowners, and property managers.

Demonstrated Technical Excellence in Approaches to Residential Retrofits 1991 - 1998
Conducted hundreds of residential energy audits and quality assurance inspections for natural gas and alternative-fueled homes. Trained and coached installers to obtain desired quality. Worked to satisfy homeowners through explanation, education, sound listening to concerns, and ultimately assuring that concerns were addressed. Trained new staff in auditing techniques.

SELECT PRESENTATIONS

Small Steps in Coordination Equal Leaps and Bounds for Pennsylvania's Underserved Families: Driving Policy Improvements through Collaborative Advocacy. ACEEE 2018 Summer Study on Energy Efficiency in Buildings, August 2018.

Keys to the House: Unlocking Residential Savings with Program Models for Home Energy Upgrades. ACEEE 2016 Summer Study on Energy Efficiency in Buildings, August 2016.

Home Upgrade Program Design & Implementation Models for Acquiring Savings in Multiple Climate Zones. 2016 National Home Performance Conference, April 2016.

EERS Advancements in Maryland: EmPOWER After 2015. Presentation at ACEEE Energy Efficiency as a Resource Conference, September 2015.

Leveling the Playing Field for Distributed Energy Resources. Panelist discussing the use of energy efficiency to defer T&D investments, Acadia Center forum on Envisioning Our Energy Future, February 2015.

SELECT PRESENTATIONS (continued)

Residential Retrofit Programs: What's Working? Perspectives from National Program Leaders. Panelist at AESP National Conference 2012.

Elements of Retrofit Program Incentive Design. DOE Technical Assistance Program Publication, April 2011.

Designing Effective Incentives to Drive Residential Retrofit Participation. DOE Technical Assistance Program Webinar, October 2010.

Quality Assurance for Residential Retrofit Programs. DOE Technical Assistance Program Webinar, October 2010.

Home Performance with ENERGY STAR, Quality Assurance in Vermont. Panelist at the ACI Home Energy Retrofit Summit, April 2010.

Delivering on the Promise-Engaging Communities and the Public. Panelist at 2010 NEEP Summit, March 2010.

Home Performance with Energy Star in Vermont. Presentation at CEE Member meeting, June 2009.

Leading by Example: Exemplary Low Income Energy Efficiency Programs. Presented on Efficiency Vermont's Residential low income services at California's Low Income Energy Efficiency Symposium, June 2006.

Natural Gas Efficiency Policies, Responding to the Natural Gas Crisis One Therm at a Time. Co-presented with Dan York and Anna Monis Shipley of American Council for an Energy-Efficient Economy (ACEEE) -ACEEE/CEE Market Transformation Symposium, 2004.