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White Paper:

Why the Eastern Shore Pipelines are a Bad Investment for Maryland

Overview

Currently, two pipelines are proposed for the Eastern Shore: the interstate Del-Mar Pipeline and an intrastate Chesapeake Utilities line. The Del-Mar Pipeline is a federally regulated pipeline that will cross state wetlands and will therefore require a wetlands license from the Board of Public Works this fall. The Del-Mar Pipeline will provide gas to Chesapeake Utilities' proposed pipeline, which will serve two "anchor" customers – Eastern Correctional Institute ("ECI") and the University of Maryland Eastern Shore ("UMES") – and provide gas to residents and businesses in Somerset County.

ECI currently generates heat by burning wood chips. UMES generates heat by burning a mix of propane and oil. It would not be in the best interest of Marylanders, however, to replace these two types of environmentally damaging heat sources with another.

In the same way that the wood-chip option was not a good investment for Maryland, neither is expanding gas infrastructure to the area. The economics of gas are faltering, with more and more gas companies declaring bankruptcy[1] or pulling out of costly projects,[2] while gas's contribution to climate change—an issue the state is committed to tackling—cannot be ignored. Given what we already know, gas is an expensive, short-sighted option for the region.

Gas is Not the Least-Cost Alternative

Due to technological advances, electrification is the lower cost alternative when compared to gas. For example, a recent study by Energy + Environmental Economics ("E3") examining ways to achieve California's decarbonization goals[3] concluded that, in all the long-term greenhouse gas ("GHG") reduction scenarios it evaluated, electrification of buildings, and particularly the use of

[1] *See* Hiroko Tabuchi, Fracking Firms Fail, Rewarding Executives and Raising Climate Fears, N.Y. Times, Jul. 12, 2020 (predicting that approximately 250 oil and gas companies could file for bankruptcy protection by the end of 2021).
[2] *See* Ivan Penn, Atlantic Coast Pipeline Canceled as Delays and Costs Mount, N.Y. Times, Jul. 5, 2020 (describing the announcement from two of the nation's largest utility companies to cancel the 600-mile, $8-billion Atlantic Coast Pipeline).
[3] The study examined ways to achieve an 80 percent reduction in California's greenhouse gas ("GHG") emissions by 2050 from 1990 levels. California Energy Commission, Final Project Report, The Challenge of Retail Gas in California's Low-Carbon Future iii (Apr. 2020) ("E3 Study"), https://ww2.energy.ca.gov/2019publications/CEC-500-2019-055/CEC-500-2019-055-F.pdf.

electric heat pumps for space and water heating, leads to lower energy bills for customers in the long run.[4] Similarly, building electrification was found to lower the total societal cost of meeting California's long term climate goals.[5] Finally, the study recommended avoiding gas system expansion. Gas system investments come with long lifetimes. Making such investments in the context of declining throughput—an outcome that occurs in all of the modeled scenarios—will increase the average cost of gas service.[6]

E3 adapted this same study for Maryland and presented it to the Maryland Department of the Environment ("MDE") on July 9, 2020. The researchers came to the same conclusion for Maryland as they did in California, namely that building electrification is cheaper than other mitigation measures needed to reach the state's climate goals.[7] At the same July 9 MDE meeting, a representative from the New Jersey Board of Public Utilities explained that their state's Energy Master Plan relies heavily on electrification of building sector heating loads because it is the most cost effective path for emission reductions and is 50% less expensive than pathways that retain fossil fuel use in buildings.[8]

Another recent study from the Rocky Mountain Institute ("RMI") demonstrates the positive economics of home electrification.[9] The RMI report determined that air source heat pumps are better options economically and for the climate in multiple regions in the country. The closest geographic area to Maryland analyzed in the RMI report was Providence, Rhode Island. In Providence it is already less expensive to build new homes with air source heat pumps rather than with gas, oil, or propane heating systems. Home heat pump retrofits also are already lower cost investments than remaining on systems using oil or propane.[10] Specifically in Maryland, data from the U.S. Department of Energy presented to the MDE on August 20, 2020 demonstrated that 99 percent of Maryland homes with propane fuel and 95 percent of homes with oil can cost effectively switch to electric heat pump technologies at point of air conditioning system replacement.[11] These

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[4] Id. at 4.
[5] *Id.*
[6] *Id.* at 58.
[7] Presentation from Energy + Environmental Economics on Building Electrification in Maryland to the Md. Dept. of Environment, July 9, 2020, *available at* https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwiXsLyn8ZjrAhXHjFkKHetmBYkQFjAAegQIBBAB&url=https%3A%2F%2Fmde.maryland.gov%2Fprograms%2FAir%2FClimateChange%2FMCCC%2FDocuments%2FMWG_Buildings%2520Ad%2520Hoc%2520Group%2FE3_Building%2520Electrification%2520in%2520Maryland_07-09-20.pdf&usg=AOvVaw3EzllZuhH-v-WQI1jLLFbb.
[8] Presentation from Hannah Thonet, New Jersey Board of Public Utilities, on Building Electrification in New Jersey to the Md. Dept. of Environment, July 9, 2020, *available at* https://mde.maryland.gov/programs/Air/ClimateChange/MCCC/Documents/New%20Jersey%20Energy%20Master%20Plan%20and%20Building%20Decarbonization%20Presentation.pdf.
[9] RMI, The Economics of Electrifying Buildings: How Electric Space and Water Heating Supports Decarbonization of Residential Buildings (2018) ("RMI Report"), https://rmi.org/insight/the-economics-of-electrifying-buildings.
[10] *Id.* at 34.
[11] Presentation from Jack Mayernik, U.S. Dept. of Energy's National Renewable Energy Laboratory, to the Md. Dept. of Environment, August 20, 2020, *available at:* https://mde.maryland.gov/programs/Air/ClimateChange/MCCC/Documents/MWG_Buildings%20Ad%20Hoc%20Group/Cost%20Effectiveness%20of%20Electrification%20with%20Air-Source%20Heat%20Pumps%20presentation.pdf.

are the kinds of fuels currently used in Somerset County that can cost effectively be replaced by healthy, clean home-heating technologies instead of gas.

To make the case that gas is the economic choice for Somerset County, Chesapeake Utilities relies on a Regional Economic Studies Institute ("RESI") study.[12] As an initial matter, this study is already four and a half years old. Heat-pump technology has continued to improve during that time. Electric heat pumps today dramatically outperform their gas counterparts, with coefficients of performances several times greater than those of gas heat pumps. The RESI study also fails to compare gas costs to any renewables such as solar or wind. The cost of renewable energy has dropped dramatically in the last several years. Costs for utility scale solar have been falling about 13 percent annually for the last five years while onshore wind costs have declined seven percent annually.[13] The most recent annual analysis by the financial firm Lazard concludes that this cost will continue to fall.[14]

Thumb on the Scale for Gas

The state did not do its due diligence in determining the most economical option for transitioning ECI and UMES away from propane and wood chips. In March 2019, the Maryland Environmental Service ("MES") awarded a contract to Chesapeake Utilities to install energy infrastructure for the two state facilities. Despite claiming that the procurement process was "exhaustive and competitive,"[15] it appears that only one company applied. Even more concerning was the fact that MES foreclosed the possibility of any alternative energy source by only requesting applications for gas. MES issued the following request for proposals ("RFP"):

> The Maryland Environmental Service (Service or MES) is issuing this Request for Proposals (RFP) to provide Engineering, Procurement, and Construction of a *natural gas pipeline* to supply to the Eastern Correctional Institution (ECI) and to the University of Maryland Eastern Shore (UMES) campus.[16]

By *only* requesting applications for a "natural gas pipeline," the state put its thumb on the scale for gas and foreclosed the possibility of comparing the benefits and costs of alternatives. The state did not consider whether electrification, as discussed above, was a lower cost alternative. Nor did it consider geothermal energy, which, according to a National Wildlife Federation report, had been

[12] RESI, Economic and Fiscal Impacts of Expanding the Natural Gas Infrastructure in Maryland (Jan. 25, 2016) (prepared for The Maryland Natural Gas LDCs) ("RESI Study").
[13] Id. at 4.
[14] Lazard, Lazard's Levelized Cost of Energy Analysis – Version 13.0 (Nov. 2019), https://www.lazard.com/media/451086/lazards-levelized-cost-of-energy-version-130-vf.pdf.
[15] Press Release: Maryland Energy Administration, Maryland Environmental Service Jointly Announce Award for Clean Natural Gas Infrastructure Project for University of Maryland Eastern Shore and Eastern Correctional Institution, Mar. 29, 2019, https://menv.com/maryland-energy-administration-maryland-environmental-service-jointly-announce-award-for-clean-natural-gas-infrastructure-project-for-university-of-maryland-eastern-shore-and-eastern-correctional-ins/.
[16] The MES RFP is attached hereto as Attachment A (emphasis added).

adopted by 154 schools in 42 states and the District of Columbia in 2011.[17] Included in these 154 schools are Harford Community College, Johns Hopkins University, McDaniel College, and St. Johns College, all Maryland-based institutions.[18] Clearly, geothermal in Maryland is viable, given the number of local schools that had adopted it in 2011, yet Maryland foreclosed any possibility of considering this alternative in its procurement process.

Stranded Assets

The Del-Mar and Chesapeake Utilities pipelines will require the installation of infrastructure that contributes significantly to climate change in conflict with Maryland's climate commitments, and which, as a result, may in the near future become abandoned stranded assets for which ratepayers must continue to pay.

The Maryland legislature has established goals and MDE has proposed regulatory strategies for reducing climate pollution from its energy sector.[19] Gas use in buildings is already a significant source of GHG emissions in Maryland.[20] Building electrification—converting energy end uses in buildings from fossil fuels to cleaner electricity—is therefore a core strategy to achieve Maryland's GHG emissions reduction targets.[21]

The Del-Mar Pipeline will supply gas to the Chesapeake Utilities project. The cost of this project will be added to the utilities' rate base, where all ratepayers will continue to pay off this investment for approximately the next 40 years. Reducing gas use in buildings also could lead to a reduction in the gas customer base and a diminished need for the state's gas infrastructure. Aside from the emissions benefits from reduced gas consumption, there are several financial implications to the

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[17] Nat'l Wildlife Fed., Going Underground On Campus: Tapping the Earth for Clean, Efficient Heating and Cooling (2011), https://www.nwf.org/EcoLeaders/Campus-Ecology-Resource-Center/Reports/Going-Underground-on-Campus. The number of schools that have incorporated geothermal has likely increased since 2011.

[18] Id. at 62.

[19] the Maryland General Assembly passed and Governor Hogan signed the Greenhouse Gas Emissions Reduction Act of 2016 ("GGRA"). This law renewed the 2009 Maryland law that set a goal to reduce climate-polluting GHG emissions statewide by 25 percent by 2020. The 2016 reauthorization bill also further extended the goal to a 40 percent reduction by 2030, requiring long-term cuts in GHG emissions. Md. S.B. 323, Chapter 11 (Apr. 4, 2016), http://mgaleg.maryland.gov/2016RS/chaptersnoln/Ch11sb0323T.pdf.

[20] According to the MDE's 2017 GHG Emissions Inventory, GHG emissions from gas usage far exceeds the GHG emissions from any other Residential, Commercial or Industrial fossil fuel combustion source in Maryland, and collectively, emissions from energy to heat and cool buildings exceeded emissions associated with electricity consumption in Maryland, constituting a significant share of the state's climate emissions. MDE, GHG Inventory, MD 2017 Periodic GHG Emissions Inventory (Corrected Microsoft Excel file) (July 26, 2019), https://mde.maryland.gov/programs/Air/ClimateChange/Pages/GreenhouseGasInventory.aspx.

[21] *See* MDE, The GHG Emissions Reduction Act: 2019 GGRA Draft Plan, at VI (Oct. 2019), https://mde.maryland.gov/programs/Air/ClimateChange/Documents/2019GGRAPlan/2019%20GGRA%20Draft%20Plan%20(10-15-2019)%20POSTED.pdf ("Draft Plan") (proposing "to begin incentivizing increased deployment of efficient electric heat pumps to heat homes in Maryland, including in homes that currently use a different fuel for heat, in order to improve the efficiency of residential heating systems, and to transition the energy source for home heating toward increasingly clean electricity."); *id.* at Appendix F (documenting Maryland PATHWAYS scenario modeling. Each scenario modeled for the Draft Plan included "moderate" to "aggressive" electrification of buildings); GGRA Draft Plan Slide Presentation, https://mde.maryland.gov/programs/Air/ClimateChange/Documents/GGRA%20DRAFT%20PLAN%20PRESENTATION.pdf (stating that a key part of the Draft Plan's buildings strategy is to "[i]ncrease use of efficient electric heat pumps for building heat.").

reduction, including the risk that some gas assets will no longer be "used and useful." Typically, when an asset no longer meets the standard of "used and useful," the utility no longer recovers the costs from its customers or earns the associated rate of return. With increased building electrification, the state's legacy gas investments may no longer meet the "used and useful" standard, potentially causing these substantial investments to be "stranded," leaving ratepayers paying for a service that is no longer needed.

Renewable Natural Gas is Expensive and Unworkable

A contract between BioEnergy DevCo and Chesapeake Utilities was announced on June 4, 2020 to convert excess organics from the poultry industry into renewable natural gas ("RNG").[22] When discussing whether to retrofit ECI's heating equipment to accept gas at a July 1, 2020 Maryland Board of Public Works meeting, MES Director Charles Glass referenced this contract to indicate that ECI and Chesapeake Utilities' other end users will have the option to receive RNG instead of more conventional fracked gas.[23] While we understand the allure of these pipelines delivering RNG instead of fracked gas, we are concerned that the promise of RNG raises false hope.

In its July presentation to MDE, for instance, E3 warned that biofuels may be valuable but are limited in supply: "Even assuming optimistic RNG costs, RNG will be expensive for use in most buildings.[24] A recent report from Earthjustice and the Sierra Club came to the same conclusion. That report found that, even by 2040, the total potential supply of RNG cannot replace more than a small sliver of existing demand for fossil gas.[25] Moreover, producing fossil gas alternatives is four to 17 times more expensive than conventional fossil gas.[26]

Furthermore, RNG does not solve many of the environmental harms of more conventional fracked gas. Like fossil gas, burning RNG in homes and buildings contributes to indoor and outdoor air pollution. Indeed, a comprehensive literature review analyzing two decades' worth of peer-reviewed studies found that children who grow up in a home with a gas stove are 42 percent more likely to develop asthma than those who do not.[27] Much of this RNG comes from polluting sources such as factory farms, which threaten human health, contribute to global warming, and put workers, communities, and farmers at risk.[28] Finally, RNG, like more conventional fracked gas, is primarily made up of methane, a potent GHG. Despite claims of carbon neutrality, producing RNG

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[22] Renewable natural gas ("RNG") is also referred to as biogas, biofuels, or fossil gas alternatives ("FGAs").
[23] The Office of Gov. Larry Hogan, Bd. of Public Works Meetings, July 1, 2020, *available at* https://governor.maryland.gov/board-of-public-works-meetings/ (timestamp 1:40:00).
[24] Presentation from Energy + Environmental Economics on Building Electrification in Maryland to the Md. Dept. of Environment, July 9, 2020.
[25] Earthjustice and Sierra Club, *Rhetoric vs. Reality: The Myth of "Renewable Natural Gas" for Building Decarbonization*, Jul. 17, 2020, https://earthjustice.org/features/report-building-decarbonization.
[26] *Id.*
[27] Rocky Mountain Institute, Physicians for Social Responsibility, Mothers Out Front, Sierra Club, *Gas Stoves: Health and Air Quality Impacts and Solutions*, 13 (2020), *available at* https://rmi.org/insight/gas-stoves-pollution-health.
[28] Food & Water Watch, *Issue Brief: Biogas From Factory Farm Waste Has No Place in a Clean Energy Future* (Jul. 2019), https://www.foodandwaterwatch.org/insight/biogas-factory-farm-waste-has-no-place-clean-energy-future.

from biomass can potentially increase GHG emissions from land use change and methane leakage.[29]

Conclusion

In sum, we are concerned that expanding gas infrastructure to the area is an expensive, short-sighted option for the region. While studies have shown that there are cheaper, viable alternatives to gas, including electrification and geothermal energy, the State foreclosed the possibility of exploring any of these options by *only* requesting applications for a gas pipeline. The economics of gas are faltering, with hundreds of gas companies expected to declare bankruptcy by the end of next year.[30] These bankruptcies, combined with Maryland's commitment to tackling climate change through electrification of buildings, raises concerns that investing in new gas infrastructure will lock ratepayers into paying for decades for a product that will not be viable for that long. Furthermore, RNG is too expensive and limited in supply to supplant the need for fracked gas, not to mention the environmental threats that RNG continues to pose to producers, to end users, and to the climate.

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[29] *Rhetoric vs. Reality, supra* note 23.
[30] Hiroko Tabuchi, *Fracking Firms Fail, Rewarding Executives and Raising Climate Fears*, N.Y. Times, Jul. 12, 2020.