BRACEWELL

September 8, 2022

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Re: August 23, 2022 Petition for Rulemaking to list Heating Appliances as a Source Category and to issue New Source Performance Standards under Clean Air Act Section 111

Dear Administrator Regan:

Enclosed please find the American Gas Association's ("AGA's") initial response to the August 23, 2022 petition for rulemaking filed by 26 groups (the "Petitioners") requesting that the U.S. Environmental Protection Agency ("EPA") list heating appliances as a source category under Section 111(b)(1)(A) of the Clean Air Act ("CAA") and that EPA issue New Source Performance Standards ("NSPS") for that new source category under CAA Section 111(b)(1)(B) (the "Petition").

If EPA takes action on the Petition, the Agency should deny it for the reasons discussed in the AGA response. The suggested "heating appliances" category does not qualify as source category under CAA

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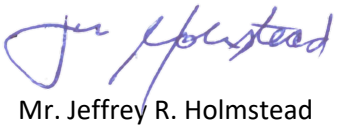
Section 111, and even if it did, the Petition does not demonstrate that emissions from the "category" endanger public health and welfare. Moreover, the requested standard is not a lawful NSPS for several reasons, including the fact that it would require the kind of generation-shifting and impose the kind of economic impact that the Supreme Court found illegal under CAA Section 111 in *West Virginia v. EPA*.

If you have any questions, we would appreciate the opportunity to discuss the Petition and AGA's response with EPA.

Best regards,



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Dear Administrator Regan,

AGA Response to Petition for Rulemaking to list Heating Appliances as a Source Category and to issue New Source Performance Standards under Clean Air Act Section 111

The American Gas Association ("AGA") files this initial response to the August 23, 2022 petition for rulemaking filed by 26 groups (the "Petitioners") requesting that the U.S. Environmental Protection Agency ("EPA") list heating appliances as a source category under Section 111(b)(1)(A) of the Clean Air Act ("CAA") and that EPA issue New Source Performance Standards ("NSPS") for that new source category under CAA Section 111(b)(1)(B) (the "Petition"). The AGA, founded in 1918, represents more than 200 local energy companies that deliver clean natural gas throughout the United States. There are more than 77 million residential, commercial and industrial natural gas customers in the U.S., of which 95 percent—more than 73 million customers—receive their gas from AGA members.

If EPA takes action on the Petition, the Agency should deny it for the reasons set forth below. Emissions from the Petitioners' suggested "heating appliances" source category do not endanger public health and welfare. Nevertheless, the Petitioners request that EPA use CAA Section 111 in a manner that would ignore the fact that Congress has authorized the U.S. Department of Energy ("DOE"), not EPA, to regulate various appliances covered by the Petition, and Congress limited that regulatory authority to setting standards for energy efficiency. EPA cannot rely on the Petitioners' creative interpretation of the CAA to go beyond what DOE is authorized to do under the Energy Policy and Conservation Act. Even if the regulatory field were not already occupied by DOE, the Petitioners request that EPA ignore key provisions of the CAA and cobble together a "heating appliances" source category and impose an impermissible "design standard" when it is otherwise feasible to impose a standard of emissions performance for gas-fired appliances. Lastly, in requesting that EPA effectively ban certain new gas-fired appliances under the auspices of CAA Section 111, the Petitioners request that EPA take precisely the type of action that the U.S. Supreme Court recently struck down in *West Virginia v. EPA*.[1]

I. Inventing the suggested "heating appliances" source category under Section 111 is inconsistent with the Clean Air Act and past EPA practice.

CAA Section 111 directs EPA to develop a list of "categories" of stationary sources that cause, or contribute significantly to, air pollution that may reasonably be anticipated to endanger public health or welfare.[2] In an effort to justify regulation under CAA Section 111, the Petition asks EPA to invent a "heating appliances" source category that covers any appliance or device that generates heat for any purpose in residential or commercial/institutional buildings. The result is a space-heating, water-heating, clothes-drying, and food-cooking appliance mega-category that is divorced from the text of CAA Section 111.

Petitioners' proposed category is also inconsistent with how EPA has defined source categories for regulation under CAA Section 111. EPA's practice has been to list specific types of facilities or industrial processes as individual "source categories." Here, the proposed category is merely based on a loose connection—that all of the sources in the proposed category generate heat—so broad that it could capture a number of different source categories already regulated under NSPS. The Petitioners' suggestion that EPA carve out residential wood heaters already regulated under NSPS Subpart AAA[3] (because that source category falls squarely within the source category the Petition seeks to define) demonstrates that the proposed "source category" in the Petition exceeds any reasonable bounds.[4]

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[1] 142 S.Ct. 2587 (2022).

[2] 42 U.S.C. § 7411(b)(1)(A).

[3] 40 C.F.R. §§ 60.530-.539b.

[4] The Petition's use of "source category" in a manner that is different from Congressional intent and past EPA practice is further demonstrated by the Petition listing multiple different categories of appliances as making up the

Space heating, water heating, cooking, and clothes drying are performed by appliances of vastly different design and function. The fact that these different categories of devices use heat to provide their function does not meet a common-sense notion that they are similar devices or should fall within the same category of stationary source. The Petitioners combine these different sources in an attempt to support a claim that the emissions from the broader source category, in the aggregate, endanger public health or welfare. Nevertheless, Petitioners' general allegations and conflation of causation and correlation fail to demonstrate that emissions from the Petitioners' overbroad "source category" cause or contribute significantly to air pollution that endangers public health or welfare, and the Petition fails to support such a determination by EPA.

For all of Petitioners' posturing, the Petition notably lacks any allegation that pollutants from an actual source category under CAA Section 111 (such as residential water heating) cause or contribute significantly to air pollution that may reasonably be anticipated to endanger public health or welfare. The absence of data to satisfy this standard demonstrates that the Petition seeks to have EPA regulate source categories that Congress did not intend EPA to regulate under CAA Section 111. The Petition is wholly lacking any support for regulating an actual "source category" under CAA Section 111.

II. Emissions of pollutants from the suggested "heating appliances" source category continue to decline over time and do not support an endangerment finding under CAA Section 111.

The emissions data cited in the Petition do not meet CAA Section 111's endangerment finding standard. The Petition summarizes existing literature regarding the impacts of the cited pollutants (nitrogen oxides, particulate matter, carbon monoxide, and carbon dioxide) while insufficiently tying these impacts directly to the specific impacts of heating appliances.[5] Further, many of the studies cited in the petition do not support the proposition that heating appliances are a "significant" contributor to climate change.

The Petition overlooks data that definitively shows that emissions from heating appliances have declined over the past decade and suggest that these emissions will continue to decline in the future. The most recent EPA "Inventory of U.S. Greenhouse Gas Emissions and Sinks" shows that "[c]arbon dioxide emissions from natural gas combustion in the residential and commercial sectors in 2020 decreased by 6.9 percent and 9.9 percent from 2019 to 2020,

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source category but then requesting that EPA establish an emissions standard under CAA Section 111 for only two of those individual categories of appliances (furnaces and water heaters). Additionally, EPA established standards for commercial and institutional steam generating units, specific to each technology type (e.g., coal-fired, gas-fired, etc.) under 40 CFR 60 Subparts Db and Dc.

[5] Additionally, as explained in greater detail below, the Petition relies on a source category of "heating appliances" that has been defined in a way that is inconsistent with the CAA and EPA practice under CAA Section 111.

respectively."[6] These declines are notable and are likely to continue, for example, as warmer temperatures will "lead to a decrease in heating degree days and result in a decreased demand for heating fuel and electricity for heat in the residential and commercial sectors, which leads to a decrease in emissions from reduced fuel consumption."[7]

Other studies cited by the Petitioners insufficiently demonstrate the material impacts of air pollution due to heating appliances.[8] The studies cited in the Petition ignore important emissions and "deaths from wildfire, biogenic, and foreign emission sources."[9] Additionally, they draw on correlative evidence to argue heating appliances are a particularly impactful source of air pollution, when these studies merely reinforce the obvious reality that large metropolitan areas are likely to have higher emissions than rural areas.[10] In other contexts, AGA has pointed out the major flaws in studies and actions that purport to demonstrate a causal connection between natural gas appliances and indoor air pollution.[11]

As noted above, "heating appliances" is not a legitimate source category under CAA Section 111. Even if it were a legitimate source category, the emissions from heating appliances do not cause, or contribute significantly to, air pollution that may reasonably be anticipated to endanger public health or welfare. And, if EPA were to evaluate the emissions of the individual appliance source categories noted in the Petition, none would meet this standard.

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[6] EPA, *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2020* at 3-23, https://www.epa.gov/system/files/documents/2022-04/us-ghg-inventory-2022-main-text.pdf.

[7] *Id.* at 2-12.

[8] For example, the Petitioners rely on support that incorporates estimates used in A Decade of the U.S. Energy Mix Transitioning Away from Coal: Historical Reconstruction of the Reductions in the Public Health Burden of Energy (May 5, 2021). In a response to this study, AGA identified key concerns, including that the "study's conclusions about the direct use of natural gas in buildings rest on estimates, not measurements, using data designated by the EPA as 'poor' or 'below average.'" As a result of this flaw, AGA concluded that "the study's findings of health effects related to natural gas combustion in end-use sectors lack real-world credibility and deserve scrutiny. *See* AGA Response to Environmental Research Letters Study at 1, May 2021, https://www.aga.org/contentassets/dcbd77a4638e4fc9bf989d20f3a0b403/harvard-response_final.pdf.

[9] Sumil K. Thakrar et. al, *Reducing Mortality from Air Pollution in the United States by Targeting Specific Emission Sources*, Environmental Science & Technology Letters at 640, 2020, https://pubs.acs.org/doi/pdf/10.1021/acs.estlett.0c00424.

[10] *See, e.g.*, Institute for Health Metrics and Evaluation (IHME), Air Quality and Health in Cities at 13, Aug. 17, 2022, https://www.healthdata.org/policy-report/air-quality-and-health-cities (recognizing that urban areas are often hotspots for poor air quality).

[11] For example, earlier this year the American Medical Association's (AMA's) House of Delegates adopted a resolution regarding the purported health impacts of gas-fired stoves. Gradient, an environmental and risk sciences consulting firm working with AGA to review that resolution, concluded that "the available studies do not provide a reliable scientific basis for AMA to make causal inferences regarding the relationship between the use of gas-fired residential cooking appliances and childhood asthma." Letter from Julie Goodman, Ph.D., Principal, Gradient to Karen Harbert, President and CEO, AGA at 3, Aug. 11, 2022, https://www.aga.org/globalassets/research--insights/gradient-ama-resolution-439-letter.pdf.

III. The Department of Energy already regulates the "heating appliance" source category by setting energy efficiency standards.

The Petition requests that EPA list heating appliances as a source category under CAA Section 111(b) and promulgate an "emissions standard" for new appliances within the category that electric heat pump technology is the "best system of emissions reduction" (BSER) from natural gas-fired water heaters and furnaces. In doing so, the Petitioners request that EPA attempt to use the NSPS program to regulate the energy efficiency of appliances that are already subject to energy efficiency standards established by DOE.

Congress has mandated through various statutes that DOE is to implement energy conservation standards for the appliances targeted by the Petition. DOE already implements minimum energy conservation standards for natural gas-fired water heaters and furnaces (and dozens of other consumer products) through its Office of Energy Efficiency and Renewable Energy and specifically the Building Technologies Office. Where Congress has specifically assigned that task to DOE, EPA cannot rely on the Petitioners' creative interpretation of the CAA to go beyond what DOE is authorized to do under the Energy Policy and Conservation Act.

IV. Electric heat-pump technology is not a BSER for new water heaters and furnaces.

Even if EPA could invent a single source category to regulate emissions from all the different appliances targeted in the Petition, EPA does not have the authority to mandate electric heat-pump technology under CAA Section 111. CAA Section 111(b)(5) prohibits EPA from mandating a particular technology. Consistent with CAA Section 111(b)(2) and existing NSPS, EPA would be required to classify appliances within the "source category" by technology type, which would differentiate among the fuel-fired units. Further, CAA Section 111 defines "standard of performance" as follows:

> The term "standard of performance" means a standard for emissions of air pollutants which reflects the degree of emission limitation achievable through the application of the best system of emission reduction which (taking into account the cost of achieving such reduction and any nonair quality health and environmental impacts and energy requirements) the Administrator determines has been adequately demonstrated.[12]

In establishing an emissions standard under the NSPS program, EPA applies the BSER to a particular source. A source category cannot be defined so broadly—based on function alone—to allow for the BSER to be a completely different process. That is what the Petitioners seek

[12] 42 U.S.C. § 7411(a)(1).

when requesting that EPA find that an electric heat pump is the BSER for natural gas-fired water heaters and furnaces. An electric heat pump is not an example of applying a "system of emission reduction" to a gas-fired water heater or furnace. A CAA Section 111(b) emissions standard is commonly expressed as a numerical limit (or rate-based standard) that reflects the application of the emissions control systems that EPA identifies as the BSER, or best demonstrated technology ("BDT"), taking into account emissions reductions, costs, secondary benefits or disbenefits resulting from energy requirements, and nonair quality impacts.[13] The Petition does not seek that an emissions standard be applied to those appliances; it seeks to eliminate them. The electric heat-pump technology proposed by the Petitioners does not reduce or limit the emissions from gas-fired furnaces and water heaters; it eliminates them by replacing the source with a completely different type of source resulting in upstream emissions from a grid that is transitioning but will continue to rely on fossil fuels for the foreseeable future.

Moreover, the Petitioners' attempt to replace gas-fired heaters and furnaces with an electric heat pump under the guise of applying an emissions control technology ignores the plain language of CAA Section 111(h), titled *Design, equipment, work practice, or operational standard; alternative emission limitation*.[14] Section 111(h) states,

> For purposes of this section, if in the judgment of the Administrator, it is not feasible to prescribe or enforce a standard of performance, he may instead promulgate a design, equipment, work practice, or operational standard, or combination thereof, which reflects the best technological system of continuous emission reduction which (taking into consideration the cost of achieving such emission reduction, and any nonair quality health and environmental impact and energy requirements) the Administrator determines has been adequately demonstrated.[15]

The Petition plainly seeks that EPA prescribe a completely different design and type of equipment as the BSER for gas-fired water heaters and furnaces. However, under Section 111(h), the Administrator only has the authority to impose a different design under Section 111 if it is not feasible to prescribe or enforce a standard of performance. In the case of gas-fired water heaters and appliances, it is feasible to prescribe and enforce an adequately demonstrated standard of performance—in fact, the state rules cited on page 3 and footnote 13 of the Petition demonstrate that NOx emissions standards of performance can be established for these sources.[16]

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[13] *See* 42 U.S.C. § 7411(a)(1).

[14] *Id*. § 7411(h).

[15] *Id*. § 7411(h)(1) (emphasis added).

[16] AGA notes that under CAA Section 111(b) only a standard that EPA has determined has been "adequately demonstrated," among other statutory factors, can be considered BSER. The existence of a state emission standard,

Electric heat-pump technology is not the BSER from gas-fired water heaters and furnaces. It is not a system of emission reduction at all; it is a separate type of source. And under CAA Section 111, EPA could only impose a different design or equipment as the BSER if a low-NOx emission standard from the source category was not feasible. The Petition requests that EPA ignore CAA Section 111(h) and for that reason must be denied.

V. The Supreme Court's holding in *West Virginia v. EPA* prohibits EPA from designating electric heat-pump technology as the BSER for new water heaters and furnaces.

The Petition characterizes an electric heat pump as both the BSER and an "inherently lower emitting process." As explained above, replacing a gas-fired furnace with an electric heat pump is not an example of applying a system of emission reduction to a gas-fired furnace; it is the replacement of that furnace with a completely different process. By prohibiting consumers from purchasing new gas-fired home appliances, this NSPS sought by the Petition would require the kind of generation-shifting activity that the Court found improper under CAA Section 111 in *West Virginia v. EPA*.[17]

In *West Virginia v. EPA*, the Court reversed and remanded the Clean Power Plan ("CPP"), which EPA had adopted to regulate carbon dioxide emissions from existing coal- and natural gas-fired power plants under CAA Section 111(d). Under Section 111(d), EPA has the authority establish "standards of performance" for certain existing sources that are subject to new source emissions standards under CAA Section 111(b).[18] As described by the Court, EPA determined for the CPP that "the 'best system of emission reduction . . . adequately demonstrated' was one that would reduce carbon pollution mostly by moving production to cleaner sources" and settled on what EPA regarded as a "reasonable" amount of generation-shifting.[19] That generation-shifting involved moving electricity production from existing coal-fired plants to natural gas-fired plants, and from existing coal- and gas-fired plants to new low- or zero-carbon generating capacity, mainly wind and solar energy.[20]

The Court determined that its review of the CPP implicated the "major questions doctrine," because it involved the "particular and recurring problem" of agencies "asserting highly consequential power beyond what Congress could reasonably be understood to have

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particularly one that has been in place for a significant period of time, merely suggests that it is feasible to develop an emission standard, not that it would serve as BSER.

[17] 142 S.Ct. 2587 (2022).

[18] 42 U.S.C. §§ 7411(d)(1).

[19] 142 S.Ct. at 2593.

[20] *Id*. at 2603.

granted."[21] The Court focused on the rule's mandated shifting away from coal- and natural gas-fired power generation as a "system of emission reduction" in striking down the CPP. The Court held,

> [I]t is not plausible that Congress gave EPA the authority to adopt on its own such a regulatory scheme in Section 111(d). A decision of such magnitude and consequence rests with Congress itself, or an agency acting pursuant to a clear delegation from that representative body.[22]

The Court ruled that CAA Section 111(d) did not grant EPA the authority to mandate the type of generation-shifting within the power industry that would have been required under the CPP.

The Petitioners recognize that the Court's reasoning in *West Virginia v. EPA* is fatal to their attempt to prohibit the production and purchase of gas-fired furnaces and water heaters under the guise of applying an emissions standard to those sources. The Petition attempts to distinguish the requested rule from the Clean Power Plan by noting that the Clean Power Plan was a standard for existing sources under CAA Section 111(d), while the rule requested by the Petition would be a standard for new sources under CAA Section 111(b). The CAA does not support the Petitioners' attempted distinction—both Sections 111(d) and 111(b) authorize the Administrator to establish "standards of performance,"[23] and nothing in CAA Section 111(b) would support the kind of generation shifting and economic impact that the Court found illegal under Section 111(d) in *West Virginia v. EPA.*

Designating electric heat-pump technology as BSER for gas-fired furnaces and water heaters would have extraordinary economic and practical consequences for consumers across the country. Heat pumps are significantly more expensive than fossil fuel-based heating appliances. It is estimated that a new gas furnace costs $1,700 to $9,700 and a new oil furnace costs $4,300-$9,200.[24] The sustainable lifestyle research organization Carbon Switch conducted a national survey and found that electric heat pumps cost between $3,500 and $20,000, with an average cost of about $14,000.[25] AGA engaged ICF to assist in the evaluation of residential electrification

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[21] *Id*. at 2609.

[22] *Id*. at 2616.

[23] 42 U.S.C. §§ 7411(b)(1)(B), 7411(d)(1).

[24] This Old House, *How Much Does a Furnace Cost?*, https://www.thisoldhouse.com/heating-cooling/reviews/furnace-cost (last visited Sept. 4, 2022).

[25] Carbon Switch, *How Much Does a Heat Pump Cost?*, https://carbonswitch.com/heat-pump-costs/ (last visited Sept. 4, 2022); *see also* David Hodari, Wall Street Journal, *Heating Your Home Is Expensive and Carbon Heavy. Will Heat Pumps Help?*, Dec. 14, 2021, https://www.wsj.com/articles/heating-your-home-is-expensive-and-carbon-heavy-will-heat-pumps-help-11639479602 (last visited Sept. 4, 2022) ("The typical cost of buying a residential air source heat pump in the U.S. is about $3,600 and the bill comes to more than $5,000 including installation, around

policy scenarios focused on space and water heating to better understand the implications for the nation.[26] That study found that, overall, policy-driven residential electrification could increase the national average residential household energy-related costs by between $750 and $910 per year, or between 38 percent and 46 percent per year.[27]

Unfortunately, these higher costs do not translate to a nationally feasible or effective product. While heat pumps can be part of the pathway to lower emissions in some parts of the country, they can be inefficient in cold weather environments. Air heat pumps rely on pumping in warm air from outside. Air heat pump performance can degrade as the outdoor temperature drops as a result of the heat pump becoming less efficient, providing less heat output, and discharging lower temperature air.[28] Geothermal heat pumps require additional drilling expenses and can be twice the cost of an air heat pump, limiting their usefulness as a system to assist consumers that live in the coldest environments and that are in the most need of heating.

Furthermore, the demand associated with electrifying these appliances would necessitate the buildout of generation and transmission infrastructure (potentially exacerbating existing grid reliability challenges in areas where electricity service is less reliable and where incremental generation is in the form of intermittent renewable energy sources), resulting in further energy costs for consumers. Multiple studies, including AGA's *Implications of Policy-Driven Residential Electrification*, have found that electrification of home heating appliances would lead to significant increases in peak electricity demand and require massive investments in transmission infrastructure to reliably supply power to homes.[29] This additional demand could require incremental generation capacity costing $102 to $319 billion and associated transmission system upgrades costings $53 to $107 billion.[30] AGA estimates, using EIA data, that because natural gas delivers between 2.5 and 3.5 times as much energy on the coldest day of the year as the electrical distribution system does on the hottest day of the year, fully electrifying the energy system would force consumers to bear the higher costs of expanding the current electric

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double the cost of buying a furnace that runs on gas or oil, according to 2018 figures from the EIA. A ground-source heat pump can cost between $12,000 and $20,000 to buy and install. Heat pumps are cheaper to install in new homes than they are to retrofit in existing properties.").

[26] AGA, Implications of Policy-Driven Residential Electrification, July 2018, https://www.aga.org/globalassets/research--insights/reports/aga_study_on_residential_electrification.pdf.

[27] *Id*. at 7.

[28] *Id.* at 15.

[29] *See generally id.*, *see also* Philip White et. al, *Quantifying the impact of residential space heating electrification on the Texas electric grid" Applied Energy* at 1, Vol 298, Sept. 2021, https://www.sciencedirect.com/science/article/pii/S0306261921005559#; Consumer Energy Alliance, *The Hidden Costs of a Virginia Natural Gas Ban*, July 2021, https://consumerenergyalliance.org/cms/wp-content/uploads/2021/07/CEA_VA_NatGas-Ban-Report.pdf.

[30] AGA, Implications of Policy-Driven Residential Electrification at 44.

infrastructure to serve peak winter heating loads. Setting costs aside, the future build out of the infrastructure necessary for this scale of electrification would face permitting challenges as well.

An overly hasty transition to electrification of heating appliances would also force the abandonment of significant swaths of natural gas infrastructure. American companies and consumers would bear significant costs associated with unusable equipment and infrastructure because electric equipment is not a direct replacement for natural gas equipment. Further, electrifying buildings and phasing natural gas out of heating appliances would lead to an increased consumption of natural gas for electricity generation, both to back-up intermittent renewable energy and for baseload power, because the United States does not yet have sufficient supplies of renewable energy and natural gas would need to be used for electricity generation.[31] However, natural gas is much more efficient for direct heating than for producing electricity, and the natural gas distribution system is significantly more reliable than the distribution system for electricity. On average, only 1 in 112 natural gas distribution customers are expected to experience an outage (planned or unplanned) in any given year; whereas electricity customers experience an average of one outage per year.[32]

Although the federal government has made significant investments in heat pump technology, it is not clear that these investments will be sufficient to make the technologies cost competitive by 2030. Experts from the industry recognize that there is still low demand for heat pumps, primarily due to perceptions of unreliability and lack of consumer familiarity.[33]

Low-income communities are likely to face the most significant cost increases from a standard requiring installation of heat pumps. Heat pumps are already expensive, more so for those with limited means. In addition, multifamily housing developments and apartment complexes are more efficiently heated by natural gas.[34] Natural gas appliances offer reliable and affordable energy. AGA estimates that households that use natural gas for heating, cooking and clothes drying save an average of $874 per year compared to homes using electricity for those applications. Not only can reduced energy costs improve quality of life, when it comes to home heating, it can save lives. Researchers have found that "lower heating prices reduce mortality in

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[31] Ognjen Miljanic, *Banning natural gas in homes will increase the consumption of natural gas*, The Hill, Apr. 2, 2021, https://thehill.com/opinion/energy-environment/546181-banning-natural-gas-in-homes-will-increase-the-consumption-of/.

[32] Gas Technology Institute, *Assessment of Natural Gas and Electric Distribution Service Reliability* at 2, July 19, 2018, https://www.gti.energy/wp-content/uploads/2018/11/Assessment-of-Natural-Gas-Electric-Distribution-Service-Reliability-TopicalReport-Jul2018.pdf.

[33] Corbin Hiar, *Could the climate bill warm Americans to heat pumps?,* E&E News, Aug. 1, 2022, https://www.eenews.net/articles/could-the-climate-bill-warm-americans-to-heat-pumps/.

[34] Steven Nadel and Lyla Fadali, American Council for An Energy Efficiency Economy, *Analysis of Electric and Gas decarbonization Options for Homes and Apartments*, July 2022, https://www.aceee.org/sites/default/files/pdfs/b2205.pdf.

winter months . . . [and] that the drop in natural gas prices in the late 2000s, induced largely by the boom in shale gas production, averted 11,000 winter deaths per year in the US."[35]

VI. EPA's existing efforts to address natural gas infrastructure are more appropriate to reducing greenhouse gas emissions from natural gas infrastructure.

Despite the Petitioners' claims to the contrary, EPA has been aggressive in taking regulatory action to reduce greenhouse gas emissions from natural gas infrastructure.[36] The Agency's most recent efforts, including EPA's proposed standards of performance and emissions guidelines for the oil and natural gas sector[37] and Subpart W of the Greenhouse Gas Reporting Rule,[38] provide EPA with a direct opportunity to advance methane reductions from natural gas infrastructure. AGA is supportive of the goals of these programs and is committed to reducing GHG emissions.[39]

Moreover, the historic results of EPA's *Inventory of US Greenhouse Gas Emissions and Sinks* reveals that the natural gas industry, and in particular natural gas utilities, has continuously reduced GHGs emissions. The natural gas industry's methane emissions account for only 2.7 percent of total greenhouse gas emissions. Distribution systems owned and operated by local natural gas utilities emit 0.08 percent of produced natural gas. These annual emissions declined 69 percent from 1990 to 2019, even as natural gas utility companies added more than 788,000 miles of pipeline to serve 21 million more customers.[40]

VII. The Petitioners ignore the uncertainty and challenges associated with their request.

The motivation underpinning the Petition is clear: the Petitioners seek to eliminate gas appliances to advance their climate goals. However, there are significant challenges and unknowns associated with comprehensive building sector electrification that are omitted from the Petition.

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[35] National Bureau of Economic Research, *Inexpensive Heating Reduces Winter Mortality* at 1-2, March 2019, https://www.nber.org/system/files/working_papers/w25681/w25681.pdf.

[36] *See* EPA, *U.S. to Sharply Cut Methane Pollution that Threatens the Climate and Public Health*, Nov. 2, 2021, https://www.epa.gov/newsreleases/us-sharply-cut-methane-pollution-threatens-climate-and-public-health.

[37] EPA, Standards of Performance for New, Reconstructed, and Modified Sources and Emissions Guidelines for Existing Sources: Oil and Natural Gas Sector Climate Review, 86 Fed. Reg. 63,110 (Nov. 15, 2021).

[38] 40 C.F.R. Part 98, Subpart W.

[39] AGA, Climate Change Position Statement, https://www.aga.org/globalassets/aga_climate-change-document_final.pdf.

[40] AGA, *Understanding Updates to the EPA Inventory of Greenhouse Gas Emissions from Natural Gas Systems* at 10, May 17, 2021, https://www.aga.org/contentassets/f4227be971f545bf8a869234d7220526/ea-2021-02-updating-the-facts-of-ghg-inventory_final.pdf.

The Petition describes electric heat pumps as zero emission appliances. Electric heat pumps are zero emission, however, only at the site of the unit and only regarding CO_2 emissions,[41] a limited view when considering the broader context of climate policy. To consider the entire picture, emissions upstream from the unit should be considered, and while the transition to renewable energy sources is ongoing, for the foreseeable future, the electric grid will still rely on fossil fuel-based energy that has associated emissions.[42] AGA has estimated that comprehensive policy-driven electrification would reduce total U.S. GHG emissions by 1 percent to 1.5 percent in 2035.[43]

Furthermore, there are significant uncertainties associated with comprehensive building of electrification, as recognized in a recent study that AGA commissioned with ICF, *Net-Zero Emissions Opportunities for Gas Utilities*.[44] As that study recognizes, "[i]t is critical that decision-makers carefully address uncertainty about the cost, feasibility, equity, and energy reliability impacts of mandating building electrification or incentivizing electrification over other decarbonization options."[45] For example, the ability of electric air heat pumps to perform in cold climates may still be a concern.[46] In addition, a large-scale shift to electric heating would drive significant increases in peak electric loads, shift the electric grid from summer peaking to winter peaking in many locations, and increase the challenges associated with intermittent generation sources.[47] This shift could require the buildout of additional infrastructure in the form of generating capacity and grid upgrades. Electrification of residential and commercial buildings also can have potentially costly impacts or technical limitations on existing gas customers as the attempt to retrofit.[48]

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[41] Describing electric heat pumps as zero-emissions ignores the fact that electric heat pumps use refrigerants that often have extremely high global warming potentials. *See, e.g.*, EPA, Purchasing and Repairing Home Air-Conditioners or Heat Pumps, Dec. 17, 2021 (confirming the use of refrigerants in heat pumps and noting their contribution to climate change), https://www.epa.gov/ods-phaseout/purchasing-and-repairing-home-air-conditioners-or-heat-pumps.

[42] Energy Information Association, *EIA projects renewables share of U.S. electricity generation mix will double by 2050*, Feb. 8, 2021 ("EIA projects that the share of renewables in the U.S. electricity generation mix will increase from 21% in 2020 to 42% in 2050."), https://www.eia.gov/todayinenergy/detail.php?id=46676.

[43] AGA, *Implications of Policy-Driven Residential Electrification* at 7 ("The potential net reductions in emissions from the residential sector are partially offset by increases in emissions from the power generation sector, even in the case where all incremental generating capacity is renewable.").

[44] AGA, *Net-Zero Emissions Opportunities for Gas Utilities* at 42, Feb. 8, 2022, https://www.aga.org/globalassets/research--insights/reports/aga-net-zero-emissions-opportunities-for-gas-utilities.pdf.

[45] *Id*.

[46] *Id*.

[47] *Id*.

[48] *Id*.

Instead, AGA advocates for a more thoughtful and strategic approach that reduces greenhouse gas emissions through smart innovation, new and modernized infrastructure, and advanced technologies that maintain reliable, resilient, and affordable energy service choices for consumers.[49] As noted above, to some degree this can be achieved through EPA's existing efforts to reduce methane emissions from natural gas infrastructure.

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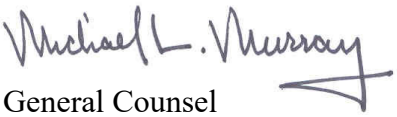
The AGA respectfully requests that if EPA takes action on the Petition that EPA deny it. The Petition wholly fails to demonstrate that emissions from heating appliances cause or contribute significantly to air pollution that may reasonably be anticipated to endanger public health or welfare. DOE energy efficiency standards have and will continue to drive down emissions from the multiple categories of sources identified in the Petition. The Petitioners want EPA to encroach on an area where Congress has delegated regulatory authority to DOE, and to do so through an unlawful application of CAA Section 111(b).

We look forward to discussing the Petition with EPA and answering any questions the Agency may have about the information included in the Petition, or in this submittal. Please contact the undersigned if you have any questions.

Sincerely,

Michael Murray



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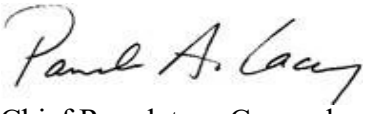

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[49] AGA, Climate Change Position Statement.