



# AMERICAN PUBLIC GAS ASSOCIATION

November 21<sup>st</sup>, 2019

House Select Committee on the Climate Crisis  
H2-359 Ford Building  
Washington, DC 20515

Submission via email: [ClimateCrisisRFI@mail.house.gov](mailto:ClimateCrisisRFI@mail.house.gov)

Re: House Select Committee on the Climate Crisis Request for Information

Dear Chairwoman Castor and Ranking Member Graves:

The American Public Gas Association (APGA) is pleased to respond to the Committee's Request for Information and the questions listed below. APGA is the natural trade association for approximately 1,000 communities across the U.S. that own and operate their retail natural gas distribution entities. They include municipal gas distribution systems, public utility districts, county districts, and other public agencies, all locally accountable to the citizens they serve. Public gas systems focus on providing safe, reliable, and affordable natural gas service to their customers. APGA members serve their communities in many ways through delivering natural gas to be used for cooking, clothes drying, and space and water heating, as well as for various commercial and industrial applications.

APGA members are offended when environmental advocates dismiss their perspective and assert that they do not care about the planet. Our members have been and desire to be good stewards of the environment, evidenced by the way they maintain and operate their utilities. They have long advocated for energy efficiency in their communities, believing public natural gas utilities and the existing pipeline infrastructure should continue to play an integral role in reducing greenhouse gas (GHG) emissions. They also recognize natural gas can provide energy affordability and reliability to all Americans, in addition to proven environmental benefits. The responses provided below elaborate on this theme. Again, today's stampede toward mandatory electrification of homes and businesses is *not* the most effective way to lower GHG emissions, so please consider our counterproposal that provides for balanced solutions to supply clean energy in an efficient and cost-effective manner.

APGA has not responded below to the questions that do not pertain to our membership. We would be pleased to identify industry peers that can answer a few of these more effectively. Again, thank you for this chance to engage in this important conversation on an appropriate and comprehensive approach to climate legislation.

## **Sector-Specific Policies**

1. *What policies should Congress adopt to decarbonize the following sectors consistent with meeting or exceeding net-zero emissions by mid-century? Where possible, please provide analytical support that demonstrates that the recommended policies achieve the goal.*

Before discussing the specific sectors, APGA wants to acknowledge that the question assumes, as some states have, net-zero emissions by 2050 is in the best interest of the United States. APGA believes that both the global environment and American consumer can benefit if practical solutions are pursued. Ones that include the continued use of natural gas in specific applications, meaning policy-mandated decarbonization is not the answer. Caution should be exercised when setting a target to achieve “net-zero emissions.” Balanced energy solutions that are market-based can allow for valuable environmental benefits, in Americans’ interest and not at their expense.

It does not appear feasible that the U.S. will stop generating electricity with fossil fuels by mid-century. Even in California, which has been focused on decarbonization the longest, Southern California Edison, a major electric-utility, recently reported that it will need natural gas-fired generation by 2045 as part of its “Pathway 2045.”<sup>1</sup> Given this, electrification would raise demand substantially. Most significantly, as further explained below, on a full-fuel-cycle basis, natural gas appliances are 92% efficient. That means 92% of the energy produced and delivered is consumed by the appliance at the point of use. Comparatively, electric appliances are only 30% efficient.<sup>2</sup> This fact likely influences the conclusion from that same report by Southern California Edison that 100% building decarbonization is not appropriate.<sup>3</sup> Electrification is a dubious and dangerous policy objective. We hope the Committee will keep an open mind when developing policies for our Nation.

#### a. Transportation

Several APGA members are heavily invested in natural gas transportation fuels, mostly via compressed natural gas (CNG). This fuel has proven to be safe, abundant, economic, and cleaner than gasoline and diesel. Many of our members are proud to distribute CNG in their communities. Natural gas vehicles (NGVs) increase fuel diversity, spurring economic growth and the potential for expanded application across the country. NGVs also provide a specific benefit that other fuels cannot: the ability for communities to reach attainment status under the National Ambient Air Quality Standards (NAAQS) as set forth in the Clean Air Act. Municipalities take advantage of this by running and maintaining their own natural gas fleets, including buses and other municipally-owned fleets, especially maintenance and utility trucks. NGVs offer the fastest path to reducing heavy-duty vehicle emissions, too.<sup>4</sup> As an example, California has the most rigorous emission standards for NOx, but the Cummins Westport 8.9-liter ISL G NZ engine, which runs on natural gas, is certified to meet the California Air Resource Board (CARB) standard. This same manufacturer has an engine with near-zero NOx emissions, as well. These innovations from Cummins Westport are 90% cleaner than what the current EPA standard requires.<sup>5</sup> Everyone is “jumping on the band wagon” of electricity as the next transportation fuel, but why dismiss natural gas so quickly? Even in California, Oregon, and Washington, which have the cleanest electrical grids in the nation, the NOx emitted through power generation emissions needed to charge a heavy-

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<sup>1</sup> “Pathway 2045,” Edison International, Accessed November 14, 2019, <https://www.edison.com/home/our-perspective/pathway-2045.html>.

<sup>2</sup> American Gas Association (AGA), “Natural Gas Safety, Resilience, Innovation, 2019 Playbook,” <http://playbook.aga.org/#p=50>.

<sup>3</sup> “Pathway 2045,” Edison International, Accessed November 14, 2019, <https://www.edison.com/home/our-perspective/pathway-2045.html>.

<sup>4</sup> “Environment,” NGV America, Accessed October 21, 2019, <https://www.ngvamerica.org/environment/>.

<sup>5</sup> “Report Overview One Sheet,” NGV America, Accessed October 21, 2019, <https://cdn.ngvgamechanger.com/pdfs/game-changer-graphic-onesheet.pdf>.

duty electric vehicle (EV) is much worse than the direct use of natural gas in a heavy-duty vehicle with a natural gas engine.<sup>6</sup>

Diversity in transportation fuels reduces the risk of unknowns that cause a particular fuel to become impractical or too costly. For example, much is unknown about the mass availability of vehicle batteries. Too, it is not yet clear how to treat spent batteries in an accountable manner. The Union of Concerned Scientists has said in the past it takes so much energy to make batteries that EVs with a 250-mile range have a carbon footprint 68 percent higher than non-electric vehicles due to manufacturing.<sup>7</sup> Also, if electricity is to be the future transportation fuel, the grid will likely need significant upgrades. Research by the Smart Electric Power Alliance (SEPA), shows that 75 percent of all electric utilities in the United States are not prepared to meet expected EV load requirements in terms of grid capacity and distribution needs.<sup>8</sup> Time will be needed to build infrastructure, and how is this construction going to be paid for?

APGA understands the need to review emissions in the transportation sector and develop policies to appropriately reduce them. However, the Committee should consider the significance of NGVs in meeting carbon reduction objectives through policies achieving the greatest decrease in emissions at the lowest cost, rather than assuming the future fuel for Americans is electricity.

#### c. Industry

APGA members provide natural gas for industrial customers. Two technologies that could help in reducing emissions are combined heat and power (CHP) systems and waste heat recovery. There is a bill in the Senate, the “Heat Efficiency through Applied Technology Act (S. 2706),” that the House should mirror and pass. It would amend the Public Utility Regulatory Policies Act (PURPA) to assist States in implementing CHP and waste heat recovery projects. Both of these innovations utilize previously wasted energy in an efficient way, and through appropriate legislation and support, Congress can allow a balanced energy approach to reducing industrial emissions.

#### d. Buildings

A huge portion of the U.S. population benefits from natural gas being used in buildings, even as the overall usage volume per household is declining.<sup>9</sup> Better insulation, tighter-fitting windows and doors, more advanced appliances, and other programs championed by APGA’s members are resulting in increasingly efficient buildings. Any climate policy should allow for these continued efficiency innovations. One opportunity to support all these efforts of APGA members and others, such as builders, relates to the Department of Energy’s (DOE’s) work with stakeholders in the adoption of building codes and standards. Congress should consider the passage of HR 3586, the “Energy Savings and Building Efficiency Act of 2019.” This legislation encourages meaningful energy savings by ensuring that new model building energy codes are achievable, technology-neutral, and cost-effective.

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<sup>6</sup> “Technical Fact Sheet,” NGV America, Accessed November 14, 2019, <https://cdn.ngvgamechanger.com/pdfs/game-changer-technical-fact-sheet.pdf>.

<sup>7</sup> “Cleaner Cars from Cradle to Grave,” Union of Concerned Scientists, Published Oct 29, 2015, <https://www.ucsusa.org/resources/cleaner-cars-cradle-grave>.

<sup>8</sup> “Utilities and Electric Vehicles: Evolving to Unlock Grid Value,” Smart Electric Power Alliance, Accessed October 21, 2019, <https://sepapower.org/resource/utilities-electric-vehicles-evolving-unlock-grid-value/>.

<sup>9</sup> AGA, “Natural Gas Safety, Resilience, Innovation, 2019 Playbook,” <http://playbook.aga.org/#p=14>.

Additionally, Congress should work with the DOE Appliance Standards Program to ensure any new rulemaking furthers efficiency and doesn't force fuel switching away from natural gas, which is the most efficient energy option in most cases. Policies that encourage the deployment of efficient natural gas equipment in our nation's buildings through DOE's Appliance Standards Program can achieve substantial GHG emissions reductions. Notably, natural gas distribution emissions fell 73 percent since 1990, while utility companies added more than 760,000 miles of pipeline to get energy to an additional 20 million customers.<sup>10</sup> This is a testament to our members' tireless work to safely provide clean-burning natural gas to state-of-the-art appliances, lowering emissions regionally and nationally. All sectors must do their part to reduce GHG emissions, and natural gas utilities and their customers are leading the way. With the right legislation, regulatory framework, and federal government support, these endeavors will continue. As this Committee engages with Congressional colleagues to consider legislation on building codes, we ask that you look to science-supported data, sound modeling, and practical standards.

APGA also asks that Congress revise Section 433 of the Energy Independence and Security Act of 2007 (EISA 2007). As the world's largest real estate holder, the federal government can be a leader in building efficiency by deploying natural gas technologies across their portfolio. Unfortunately, Section 433 mandates elimination of all fossil fuel-generated energy use in federal buildings by the year 2030. The mandate specifically seeks to reduce fossil fuel use by 65% by 2020 with total elimination by 2030. It covers new buildings and major renovations (defined as at least \$2,500,000 in 2007 dollars), limiting, and ultimately, eliminating the role of natural gas in federal facilities. Section 433 creates a bias in federal policy, opposing the important role that domestically-abundant, clean, and affordable natural gas can serve in meeting the energy needs of not only federal buildings, but the country as a whole. Section 433 would also restrict the adoption of the previously discussed, highly-efficient CHP systems. Natural gas has long been a viable fuel for a wide variety of applications. The limited GHG emissions from the direct use of natural gas in federal buildings is consistent with the Committee's goals in climate legislation.

Finally, as detailed earlier, on a source-energy basis, natural gas appliances are 92% efficient. That is, 92% of the energy produced and delivered is consumed by the appliance at the point of use. Comparatively, electric appliances are only 30% efficient.<sup>11</sup> Consider the data in the below table.<sup>12</sup> It demonstrates that exclusive use of a site-based metric creates an artificial advantage for electric-powered appliances, which leads to less environmentally beneficial results and higher operating costs for consumers.

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<sup>10</sup> AGA, "Understanding Updates to the EPA Inventory of Greenhouse Gas Emissions from Natural Gas Systems." <https://www.aga.org/contentassets/f4227be971f545bf8a869234d7220526/ea-2019-02-updating-the-facts-of-ghg-inventory-003.pdf>.

<sup>11</sup> AGA, "Natural Gas Safety, Resilience, Innovation, 2019 Playbook," <http://playbook.aga.org/#p=50>.

<sup>12</sup> AGA, "A Comparison of Energy Use, Operating Costs, and Carbon Dioxide Emissions of Home Appliances – 2018 Update," <https://www.aga.org/globalassets/research--insights/reports/ea-2018-02-appliance-cost-and-emissions-comparison-2018-update.pdf>.

## Comparison of Residential Space Heating Appliances



DOE/NAECA Efficiency	7.7 HSPF	99 AFUE	80 AFUE	97 AFUE
Full-Fuel-Cycle Energy Use per Year*	97 MMBtu	155 MMBtu	69 MMBtu	52 MMBtu
CO <sub>2</sub> e** Emissions/Yr*	6.4 Metric Tons	10.3 Metric Tons	4.0 Metric Tons	2.6 Metric Tons
Annual Cost	\$1,191	\$1,904	\$656	\$496
Equipment Cost***	\$2,720	\$2,800	\$2,855	\$3,895

\* Excludes A/C operations

\*\* Includes greenhouse gas impact from unburned methane

\*\*\* Package price includes cost for air conditioning equipment

The true impact of energy consumption on the environment is not captured in federal policies based on site-based metrics. APGA asks Congress to work with DOE and the Environmental Protection Agency (EPA), to fully adopt the recommendations of the National Academy of Sciences (NAS) from its 2009 study on full-fuel-cycle (FFC) measures. While DOE has issued a policy statement agreeing to use these metrics, true implementation of the NAS recommendations is not occurring.<sup>13</sup> Using FFC metrics would help protect both consumers and the environment.

Natural gas must be recognized as part of the solution, not the problem with building emissions. The federal government should craft policies that allow natural gas technologies and appliances to compete in the market and not be in the business of eliminating fuel choice for homeowners, businesses, and the government.

### 3. *What policies should Congress adopt to ensure that environmental justice is integral to any plan to decarbonize these sectors?*

APGA believes environmental justice means no segment of the population should bear unreasonable burdens relative to benefits when it comes to the distribution of energy. Generally, natural gas is now produced from more states than ever before, so it is domestically abundant. The benefits of lower energy prices should positively impact all natural gas consumers wherever

<sup>13</sup> “Energy Conservation Program for Consumer Products and Certain Commercial and Industrial Equipment: Statement of Policy for Adopting Full-Fuel-Cycle Analyses Into Energy Conservation Standards Program,” <https://www.federalregister.gov/documents/2011/08/18/2011-21078/energy-conservation-program-for-consumer-products-and-certain-commercial-and-industrial-equipment>.

they are. This reliable natural gas supply just supports what has always been APGA’s mission: safely provide Americans energy for a higher quality of life. For many years, public natural gas utilities have supported Congress’s efforts with the Low-Income Home Energy Assistance Program (LIHEAP) and various other weatherization funding efforts. To ensure a suitable standard of living continues for all Americans, Congress should allow natural gas in a balanced energy solution. Having an “electric-only” policy will have significant negative impacts, especially on those with low or fixed incomes. As an example, with the elimination of natural gas as a fuel option, New Jersey’s “State Energy Master Plan (EMP)” would remove more than \$11.5 billion saved by households in energy expenses, and nearly \$9.7 billion saved by businesses, all without establishing whether this is the least cost and most effective pathway to reduce emissions.<sup>14</sup> California is another state exploring electrification policies, and its citizens will see significant impacts. A survey of California families shows it will cost \$7,300 to retrofit a home with electric appliances and energy bills would increase by \$387/year.<sup>15</sup> Further, a national study shows families would each have to spend, on average \$4,847, to replace four common household appliances: range, dryer, water heater, and furnace.<sup>16</sup>

Finally, on land use, the consequences of adding enough wind and solar generation to achieve net-zero emissions are only now coming into focus. There are extensive issues here that will raise new environmental justice claims. APGA encourages the Committee to consider balancing costs and environmental benefits when evaluating policies, realizing energy efficiency gains do not need to come at undue consumer expense, impacting the vulnerable.

## **Cross-Cutting Policies**

### *5. Innovation:*

- a. *Where should Congress focus an innovation agenda for climate solutions? Please identify specific areas for federal investment and, where possible, recommend the scale of investment needed to achieve results in research, development, demonstration, and deployment.*

There are several opportunities for innovation to reduce GHG emissions. A few of APGA’s Research Foundation projects will be mentioned, with the hope that Congress can work with the natural gas industry to further development and deployment of these technologies. First, a focus is on developing a low-cost, efficient, natural gas-fired heat pump for space heating, coordinating with the Gas Technology Institute (GTI) in this effort.<sup>17</sup> As well, CHP is often used in hospitals, universities, and other larger applications, but increased deployment opportunities in the residential sector exist and should be explored. Consideration should be given to investing in the innovations of natural gas-fired

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<sup>14</sup> Consumer Energy Alliance, “A Steady Stream of Natural Gas Provides Affordable Energy to New Jersey Residents and Helps the Garden State Grow,” [https://consumerenergyalliance.org/cms/wp-content/uploads/2019/06/061219\\_NJ-Energy-Savings-Report\\_FINAL.pdf](https://consumerenergyalliance.org/cms/wp-content/uploads/2019/06/061219_NJ-Energy-Savings-Report_FINAL.pdf).

<sup>15</sup> Navigant Consulting, “Impacts of Residential Appliance Electrification,” <https://c4bes.org/wp-content/uploads/2018/09/Navigant-Report-Impacts-of-Residential-Appliance-Electrification.pdf>.

<sup>16</sup> Consumer Energy Alliance, “Green New Deal Would Cost American Consumers Almost \$244 Billion in Just Four Appliances,” <https://consumerenergyalliance.org/2019/02/green-new-deal-would-cost-american-consumers-244-billion-four-appliances/>.

<sup>17</sup> Gas Technology Institute (GTI), “Enhancing Efficiency in Space Conditioning and Water Heating,” <https://www.gti.energy/enhancing-efficiency-in-space-conditioning-and-water-heating/>.

heat pumps and CHP systems to improve energy efficiency, allowing for decreased GHG emissions.<sup>18</sup> Other innovations could occur in commercial cooking applications. Again, the APGA Research Foundation, through its partnership with GTI, has focused on high-efficiency, natural gas commercial equipment and foodservice appliances.<sup>19</sup> This work involves a variety of kitchen equipment, such as fryers and ranges. Chefs prefer natural gas, since it is quick, controllable, and affordable. Natural gas needs to remain a fuel for restaurants around our nation. Research opportunities to further the capabilities should be expanded.

## **Carbon Removal**

### *10. How can Congress accelerate development and deployment of carbon removal technology to help achieve negative emissions?*

APGA encourages the Committee to allow maximum flexibility in meeting reduction goals rather than assuming a single, correct path forward. Any technology and fuel should be allowed, considering the objective is the greatest amount of emissions reduced at the most cost-effective price. The direct use of natural gas meets this goal. However, APGA members would agree in some instances even more, lower carbon solutions are needed, understanding the importance of reducing GHG emissions. For this reason, APGA and its members support renewable natural gas (RNG) technologies. RNG is pipeline-compatible and potentially a negative-emission technology. It is derived from the breakdown of organic wastes and processed for use in existing natural gas infrastructure interchangeably with geologic natural gas in homes, businesses, manufacturing, and industrial applications.

RNG is also a valuable alternative fuel for transportation. Both APGA members, as well as private companies, are investing in this technology. The United Parcel Service (UPS) is making significant investments in RNG and CNG transportation initiatives. They recently announced plans to purchase more than 6,000 natural gas-powered trucks between 2020 and 2022, a commitment representing a \$450 million investment in the company's alternative fuel program to reduce emissions and a complement to its current RNG commitments.<sup>20</sup>

As alluded to earlier, RNG is a low-carbon pathway, as it takes an existing carbon-emitting waste stream, either from waste or agriculture, and recycles into a usable product. APGA members' support for RNG demonstrates their investment in balanced energy solutions that help Americans achieve utility savings and lessen environmental impacts. We ask that the Committee consider federal support for this valuable technology.

## **Resilience and Adaptation**

### *11. What policies should Congress adopt to help communities become more resilient in response to climate change?*

APGA appreciates the Committee identifying the need for resilient infrastructure, and the

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<sup>18</sup> GTI, "Improving Technology, Proving Feasibility, and Reducing Costs of Micro-CHP," <https://www.gti.energy/improving-technology-proving-feasibility-and-reducing-costs-of-micro-chp/>.

<sup>19</sup> GTI, "Creating a Suite of High-Efficiency Natural Gas Commercial Equipment and Foodservice Appliances," <https://www.gti.energy/creating-a-suite-of-high-efficiency-natural-gas-commercial-equipment-and-foodservice-appliances/>.

<sup>20</sup> "UPS adding 6,000 NGVs," Shale Directories, Accessed October 22, 2019, <https://www.shaledirectories.com/blog/ups-adding-6000-ngvs/>.

Association contends the direct use of natural gas promotes and supports a more robust and resilient energy system. A recent report provides, “The operational characteristics of the natural gas transportation network, in combination with the physical properties of natural gas, effectively minimize the likelihood and severity of service disruptions. In the rare event of a disruption, impacts are typically localized and brief. History demonstrates that disruption of firm pipeline transportation and/or storage services resulting from severe weather events are extremely rare.”<sup>21</sup> This resilience stands contrary to other energy sources used for appliances and equipment in homes and businesses. A constant power supply is critical for many of the customers APGA members serve. For instance, natural gas is used at military bases in the Florida panhandle. Should this crucial defense stakeholder not have the most reliable form of energy? As another example, above-ground infrastructure makes electric utilities susceptible to natural events, such as wind storms. In California, damaged power lines have caused wildfires, resulting in major utility companies shutting down electricity to millions of homes and businesses as a precaution to the threats from nature. Rather than putting “all eggs in one basket” through electrification, we encourage the committee to take a pragmatic approach to achieve comprehensive reliability.

Similarly, CNG for transportation is resilient. Its delivery is only dependent on the availability of the natural gas via underground pipelines. Gasoline and electricity, on the other hand, can only be used so long as gasoline supply remains uninterrupted, and the electricity infrastructure remains functional. However, these are often disrupted in severe weather events. For example, the 2017 hurricane season resulted in widespread power outages and major gasoline shortages. Fortunately, natural gas was fully functional through it all. NGVs proved resilient for two reasons. One, the supply could be delivered relatively uninterrupted. Natural gas pipelines, being underground, were mostly protected from debris, wind, and storm surges. Second, CNG can be pumped without the use of electricity. The fueling stations are run on generators that are fueled by natural gas. With no need for electricity, the pumps were able to flow CNG to stations reliably.

Given the resiliency characteristics of America’s natural gas, APGA encourages Congress to pursue policies allowing its use.

**In addition to your responses to any of these questions, please include any other specific policies that you think Congress should adopt to solve the climate crisis and adapt to the impacts of climate change.**

APGA strongly believes that natural gas is a part of the solution towards reducing GHG emissions and that a predetermined movement to electrification is wrong. Dr. Ernest Moniz, in his analysis of how California could meet its ambitious goals, provided that optionality, flexibility, and innovation are critical.<sup>22</sup> This includes the use of clean fuels, such as RNG.<sup>23</sup> A cautionary tale is that of Georgetown, Texas that was given a \$1 million grant from Bloomberg Philanthropies, with the monies to be used for battery storage and increased utilization of renewable energy. The result, however, was that the higher

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<sup>21</sup> “Natural Gas: Reliable and Resilient,” Natural Gas Council, Accessed November 14, 2019, <http://naturalgascouncil.org/wp-content/uploads/2019/04/Natural-Gas-Reliable-and-Resilient.pdf>.

<sup>22</sup> Energy Futures Initiative, “Optionality, Flexibility, & Innovation: Pathways for Deep Decarbonization in California,” [https://static1.squarespace.com/static/58ec123cb3db2bd94e057628/t/5ced6fc515fcc0b190b60cd2/1559064542876/EFI\\_CA\\_Decarbonization\\_Full.pdf](https://static1.squarespace.com/static/58ec123cb3db2bd94e057628/t/5ced6fc515fcc0b190b60cd2/1559064542876/EFI_CA_Decarbonization_Full.pdf).

<sup>23</sup> Ibid.



costs of renewable energy, compared to natural gas, created a \$6.84 million shortfall at the municipal utility.<sup>24</sup> The City Council voted 5-1 in July 2019 to assess the impact of returning the grant money, and based on their findings, in August 2019, the Council voted 5-0 to officially leave the partnership with Bloomberg.<sup>25</sup> These perspectives show that misguided policies using one fuel source do not achieve GHG emission reductions in a cost-effective manner.

Finally, allowing consumers to have a choice in fuel for their appliances must not be overlooked. Market solutions generally are successful if the market is not distorted. Data shows that Americans prefer natural gas for cooking and space and water heating. Recent statistics show less than 10% of California residents would choose an all-electric home, and 80% oppose prohibiting the use of gas appliances.<sup>26</sup> Another study provides, overall, the preferred energy source is natural gas for home heating, water heating, and cooking.<sup>27</sup> As the Committee contemplates legislative options to reduce GHG emissions, APGA encourages not to pick a single solution but instead, allow for maximum flexibility in meeting science-based goals, providing for low-cost solutions.

Respectfully submitted,



Bert Kalisch  
President & CEO  
American Public Gas Association

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<sup>24</sup> Community Impact Newspaper, “Georgetown City Council considers pulling out of \$1 million Bloomberg grant,” <https://communityimpact.com/austin/georgetown/city-county/2019/07/23/georgetown-city-council-considers-pulling-out-of-1-million-bloomberg-grant/>.

<sup>25</sup> Community Impact Newspaper, “Bloomberg terminates \$1 million grant award to city of Georgetown,” <https://communityimpact.com/austin/georgetown/city-county/2019/08/13/bloomberg-terminates-1-million-grant-award-to-city-of-georgetown/>.

<sup>26</sup> California Building Industries Association, “California Natural Gas Poll - Consumer Survey of 3000 California Voters.”

<sup>27</sup> Woodland, O’Brien, and Scott, “New Homeowner Energy Preference Survey Closings March 2015 through February 2016.”