

**Comments of the Attorneys General of the District of Columbia, Delaware, Maryland, Massachusetts, Minnesota, New York, Rhode Island, Oregon, Vermont, Washington, and the City of New York.**

May 8, 2023

*Via electronic submission to [www.regulations.gov](http://www.regulations.gov)*  
ATTN: Docket ID No. CPSC-2023-0009

Alberta E. Mills  
Office of the Secretary  
Consumer Product Safety Commission  
4330 East West Highway  
Bethesda, MD 20814

**Re: Consumer Product Safety Commission Request for Information on Chronic Hazards Associated with Gas Ranges and Proposed Solutions**

Dear Ms. Mills:

The undersigned State Attorneys General of the District of Columbia, Delaware, Maryland, Massachusetts, Minnesota, New York, Rhode Island, Oregon, Vermont, Washington, and the City of New York (“States”) respectfully submit these comments on the Consumer Product Safety Commission’s (“CPSC”) *Request for Information on Chronic Hazards Associated with Gas Ranges and Proposed Solutions*.<sup>1</sup> The States support the CPSC’s initiative to collect information on the health hazards associated with gas stoves,<sup>2</sup> to determine the best path forward to mitigate those harms and protect consumers. The States are particularly interested in measures that will reduce the harms associated with gas stoves due to their disproportionate impact on underserved communities. Once the CPSC has completed this information-gathering process, the States urge the CPSC to develop voluntary standards or mandatory regulations that will reduce the emissions of harmful pollutants from gas stoves that degrade indoor air quality in U.S. households. In addition, the States urge the CPSC to increase consumer awareness of the harms posed by gas stoves through more informative warning labels and public education.

**I. Introduction**

Over the past several decades, a significant amount of evidence has accumulated raising concerns about the pollutants from gas stoves found in U.S households.<sup>3</sup> As far back as 1985, the CPSC displayed concern for the health risks associated with gas stoves, especially from nitrogen

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<sup>1</sup> 88 Fed. Reg. 14,150 (Mar. 7, 2023).

<sup>2</sup> Otherwise known as or including, gas ranges, gas cooktops, gas stovetops, and gas ovens.

<sup>3</sup> See, e.g., Weiwei Lin et al., *Meta-Analysis of the Effects of Indoor Nitrogen Dioxide and Gas Cooking on Asthma and Wheeze in Children*, 42 INT’L J. EPIDEMIOLOGY 1724, 1728 (2013), <https://doi.org/10.1093/ije/dyt150>.

dioxide (“NO<sub>2</sub>”) exposures.<sup>4</sup> Ten years later, the Environmental Protection Agency (“EPA”) and the CPSC co-authored a report that identified a number of household appliances, including gas stoves, as contributors to indoor “carbon monoxide, nitrogen dioxide, and particle[.]” pollution.<sup>5</sup> The gas industry has itself recognized “gas cooking does generate indoor air emissions, including carbon monoxide, oxides of nitrogen, trace amounts of materials such as formaldehyde, and so forth.”<sup>6</sup> Moreover, the indoor emissions of these pollutants from gas stoves routinely reach levels that are unsafe for human health. Gas stoves, especially when inadequately vented, emit levels of NO<sub>2</sub>, carbon monoxide (“CO”), and fine particulate matter (“PM<sub>2.5</sub>”) indoors that exceed EPA standards set for outdoor ambient air quality after only a few minutes of use.<sup>7</sup> And although harmful indoor air quality has been listed as one of the top five risks to public health, EPA does not set indoor exposure limits.<sup>8</sup> Meanwhile, people spend the vast majority—nearly 90 percent—of their time indoors.<sup>9</sup> And more than 40 million U.S. households use a gas stove for cooking.<sup>10</sup>

Most of the research and evidence on the health risks associated with elevated levels of emissions from gas appliances has been circulated among decisionmakers and engaged stakeholders.<sup>11</sup> This has left the public to try to piece together health and safety information—which can be false or misleading—from the internet, social media, and other non-authoritative

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<sup>4</sup> ENV’T PROT. AGENCY, REPORT OF THE CLEAN AIR SCIENTIFIC ADVISORY COMMITTEE: A REVIEW OF THE CONSUMER PRODUCT SAFETY COMMISSION’S HEALTH EFFECTS AND EXPOSURE ASSESSMENT DOCUMENTS ON NITROGEN DIOXIDE (May 1986), available at <https://nepis.epa.gov/Exe/ZyNET.exe/P1000J0G.txt?ZyActionD=ZyDocument&Client=EPA&Index=1986%20Thru%201990&Docs=&Query=&Time=&EndTime=&SearchMethod=1&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&UseQField=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=&File=D%3A%5CZYFILES%5CINDEX%20DATA%5C86THRU90%5CTXT%5C0000017%5CP1000J0G.txt&User=ANONYMOUS&Password=anonymous&SortMethod=h%7C-&MaximumDocuments=1&FuzzyDegree=0&ImageQuality=r75g8/r75g8/x150y150g16/i425&Display=hpfr&DefSeckPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=2#> [hereinafter CASAC REPORT].

<sup>5</sup> ENV’T PROT. AGENCY & CONSUMER PRODUCTS SAFETY COMM’N, THE INSIDE STORY: A GUIDE TO INDOOR AIR QUALITY (1995), available at <https://www.cpsc.gov/Safety-Education/Safety-Guides/Home/The-Inside-Story-A-Guide-to-Indoor-Air-Quality> [hereinafter THE INSIDE STORY].

<sup>6</sup> Jeff Brady, *Gas stove makers have a pollution solution. They’re just not using it*, NPR (Feb. 4, 2023, 7:00AM), <https://www.npr.org/2023/02/04/1149736969/gas-stove-makers-have-a-pollution-solution-theyre-just-not-using-it> (quoting AGA Ted Williams, AGA’s senior director for codes and standards at the time, in a 2020 webinar material which was provided to NPR).

<sup>7</sup> Eric D. Lebel, et al., *Methane and NO<sub>x</sub> Emissions from Natural Gas Stoves, Cooktops, and Ovens in Residential Homes*, 56 ENV’T L SCI. & TECH. 2529, Supporting Information Figure S11 (2022), available at <https://doi.org/10.1021/acs.est.1c04707>; Rob Jordan, *Stanford scientists find the climate and health impacts of natural gas stoves are greater than previously thought*, STANFORD NEWS (Jan. 27, 2022), <https://news.stanford.edu/2022/01/27/rethinking-cooking-gas/>.

<sup>8</sup> See *Why Indoor Air Quality is Important to Schools*, Env’t Prot. Agency, <https://www.epa.gov/iaq-schools/why-indoor-air-quality-important-schools> (last visited May 3, 2023); see also, e.g., *Indoor Air Quality (IAQ): Does EPA Regulate Volatile Organic Compounds (VOCs) in Household Products?*, Env’t Prot. Agency, <https://www.epa.gov/indoor-air-quality-iaq/does-epa-regulate-volatile-organic-compounds-vocs-householdproducts> (last visited May 3, 2023) (“EPA does not regulate indoor air quality. . .”).

<sup>9</sup> Neil E. Klepis et al., *The National Human Activity Pattern Survey (NHAPS): A Resource for Assessing Exposure to Environmental Pollutants*, 11 J. OF EXPOSURE ANALYSIS & ENV’T EPIDEMIOLOGY 231 (2001), available at <https://www.ncbi.nlm.nih.gov/pubmed/11477521>.

<sup>10</sup> Lebel, et al., *supra* note 7, at 2529.

<sup>11</sup> See Matt Casale, *Gas Stoves and Your Health*, U.S. PIRG (Dec. 14, 2022), <https://pirg.org/edfund/resources/gas-stoves-and-your-health/>.

sources.<sup>12</sup> Thus, when it comes to gas stove emissions, consumers are presently unprotected against, and inadequately informed about, the health hazards these appliances pose.

The letter first describes the known health hazards associated with gas stove use, especially as they relate to NO<sub>2</sub>, and the disproportionate impact of those hazards on “sensitive groups” such as young children, the elderly, and people with respiratory illnesses<sup>13</sup> as well as underserved communities.<sup>14</sup> Second, the letter details various state initiatives and efforts to address the health and climate impacts associated with household gas appliances. Third, the letter recommends ways in which the CPSC can regulate gas stoves to mitigate their health hazards, as well as ways in which the agency can increase consumer awareness of these hazards.

## **II. The Emissions from Gas Stoves Pose Severe Health Risks, Especially for Sensitive Groups and Underserved Communities.**

Over 40 years of evidence demonstrates that gas stoves release toxic pollutants at levels that can damage human health.<sup>15</sup> The harmful chemicals emitted from gas stoves include NO<sub>2</sub>, CO, PM<sub>2.5</sub>, formaldehyde, benzene, and other pollutants, all of which have been linked to harmful health impacts. Because these emissions occur indoors, concentrations of these pollutants can quickly increase to levels that are unsafe for human health—and which are particularly harmful to sensitive groups.<sup>16</sup> For instance, NO<sub>2</sub> levels can get particularly high indoors reaching levels exceeding EPA’s limits on permissible outdoor concentrations of NO<sub>2</sub>.<sup>17</sup> Exposure to elevated levels of NO<sub>2</sub> has been linked to a range of health risks including respiratory illnesses such as

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<sup>12</sup> See, e.g., Robert M. Gould, *Misinformation on gas stoves is swirling around the internet. Here’s what you need to know*, SAN FRANCISCO CHRONICLE (Jan. 13, 2023, 10:18 PM), <https://www.sfchronicle.com/opinion/openforum/article/misinformation-gas-stoves-17716719.php>.

<sup>13</sup> See Technical Assistance Document for the Reporting of Daily Air Quality – the Air Quality Index (AQI), Env’t Prot. Agency, EPA 454/B-18-007, tbl.4 (2018), <https://www.airnow.gov/sites/default/files/2020-05/aqi-technical-assistance-document-sept2018.pdf> [hereinafter EPA AQI Assistance Document].

<sup>14</sup> As defined by Executive Order 13985, “underserved communities” refers to populations sharing a particular characteristic, as well geographic communities, that have been systematically denied a full opportunity to participate in aspects of economic, social, and civic life, as exemplified by the list in the . . . definition of “equity.” Exec. Order No. 13,985 (Jan. 20, 2021) (defining “equity” as “the consistent and systematic fair, just, and impartial treatment of all individuals, including individuals who belong to underserved communities that have been denied such treatment, such as Black, Latino, and Indigenous and Native American persons, Asian Americans and Pacific Islanders and other persons of color; members of religious minorities; lesbian, gay, bisexual, transgender, and queer (LGBTQ+) persons; persons with disabilities; persons who live in rural areas; and persons other adversely affected by persistent poverty or inequality”).

<sup>15</sup> See, e.g., Lin, *supra* note 3; CASAC REPORT, *supra* note 4 (EPA and CPSC have been aware and have publicized health risks of NO<sub>2</sub> emissions from gas stoves more than 35 years ago); Brady Anne Seals & Andee Krasner, RMI, *Health Effects from Gas Stove Pollution* (2020), <https://rmi.org/insight/gasstoves-pollution-health>.

<sup>16</sup> Lebel, et al., *supra* note 7, at 2529.

<sup>17</sup> EPA has designated outdoor areas with one-hour levels of NO<sub>2</sub> between 101 and 360 parts per billion (ppb) as “unhealthy for sensitive groups.” EPA AQI Assistance Document, *supra* note 13. Studies have found that gas stove emission result in average indoor NO<sub>2</sub> concentrations of up to 65 ppb over a 24-hour period, with peak concentrations reaching 189 ppb. Laura A. Figueroa & Jack Lienke, *The Emissions in the Kitchen*, INST. FOR POLICY INTEGRITY 2 (2022) (citing ENV’T PROT. AGENCY, INTEGRATED SCIENCE ASSESSMENT FOR OXIDES OF NITROGEN—HEALTH CRITERIA 3-37 to -38 tbl.3-4 (2016), <https://www.epa.gov/isa/integrated-science-assessment-isa-nitrogen-dioxide-health-criteria>).

asthma and chronic obstructive pulmonary disease.<sup>18</sup> Aside from impacts on respiratory health, NO<sub>2</sub> exposure has also been linked to other health risks, such as cardiovascular disease, reproductive effects, and increased mortality.<sup>19</sup> A recent study conducted in conjunction with the New York Public Housing Authority found that cooking with gas stoves resulted in indoor air concentration levels of NO<sub>2</sub> that exceed the standards EPA has established for outdoor air designed to protect sensitive groups such as young children, the elderly and people with respiratory illnesses.<sup>20</sup> This problem is particularly pronounced for households that lack the equipment or ventilation systems needed to vent emissions outdoors. Perhaps even more concerning, in addition to pollution emitted while a gas stove is in use, researchers have found that unburned gas due to incomplete combustion or leakage from stoves and building pipelines can also introduce volatile organic compounds (“VOCs”), such as benzene, exposure to which increases risks for asthma, cancer, and other illnesses.<sup>21</sup> A recent indoor air sampling study of homes in California found that natural gas leaking from kitchen stoves can produce kitchen-air concentrations of benzene in excess of the California Office of Environmental Health Hazard Assessment’s (“OEHHA”) Eight-Hour Reference Exposure Level (“REL”) for Benzene. The 8-hour REL is designed to protect individuals from hazardous exposures of up to 8 hours per day.<sup>22</sup>

Children are particularly susceptible to the health hazards associated with unvented or poorly vented gas stoves.<sup>23</sup> This is a result of children’s higher breathing rates, greater physical activity, higher lung surface to body weight ratios, and immature respiratory systems.<sup>24</sup> Living in a home with a gas stove increases the risk of asthma in children.<sup>25</sup> Indeed, studies have shown that children living in a home with a gas stove are *42 percent* more likely to experience asthma symptoms than children who live in homes with an electric stove.<sup>26</sup> A recent peer-reviewed paper found that roughly 12.7 percent of childhood asthma (about one in eight cases) in the U.S. can be

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<sup>18</sup> Seals & Krasner, *supra* note 15, at 12.

<sup>19</sup> Shiwen Huang, et al., *Long-term exposure to nitrogen dioxide and mortality: A systematic review and meta-analysis*, 776 SCI. OF THE TOTAL ENV’T 145968 (2021); H. Saki, et al., *Study of relationship between nitrogen dioxide and chronic obstructive pulmonary disease in Bushehr, Iran*, 8(2) CLINICAL EPIDEMIOLOGY & GLOBAL HEALTH 446 (2020), available at [https://cegh.net/article/S2213-3984\(19\)30393-8/fulltext](https://cegh.net/article/S2213-3984(19)30393-8/fulltext).

<sup>20</sup> WEACTION for Environmental Justice, *Out of Gas, In with Justice: Studying the Impacts of Induction Stoves on Indoor Air Quality in Affordable Housing*, 8-9, 16 (2023), <https://www.weaction.org/wp-content/uploads/2023/02/Out-of-Gas-Report-FINAL.pdf> [hereinafter “WEACTION Pilot Study”]. Acknowledging the disproportionate rates of asthma among minority and low-income communities and the potential impact of gas cooking appliances on indoor air quality, this pilot study investigated the feasibility and benefits of residential cooking electrification in low-income housing units owned by the New York City Housing Authority. *Id.* The study examined air quality in units with existing gas stoves and those in which gas stoves had been replaced with induction stoves. *Id.* Air quality was monitored during residents’ normal daily activities and during standardized controlled cooking tests in units. *Id.*

<sup>21</sup> Drew R. Michanowicz, et al., *Home is Where the Pipeline Ends: Characterization of Volatile Organic Compounds Present in Natural Gas at the Point of the Residential End User*, 56(14) ENV’T SCI. TECH. 10258-68 (2022), available at <https://pubmed.ncbi.nlm.nih.gov/35762409/>.

<sup>22</sup> Eric D. Lebel, et al., *Composition, Emissions, and Air Quality Impacts of Hazardous Air Pollutants in Unburned Natural Gas from Residential Stoves in California*, 56(22) ENV’T SCI. TECH. 15835 (2022), <https://pubs.acs.org/doi/10.1021/acs.est.2c02581>.

<sup>23</sup> Seals & Krasner, *supra* note 15, at 13.

<sup>24</sup> *Id.*

<sup>25</sup> *Id.*

<sup>26</sup> Lin, *supra* note 3, at 1728.

attributed to gas stove use.<sup>27</sup> In addition to respiratory illnesses, NO<sub>2</sub> emitted by gas stoves can adversely impact neurodevelopment in children.<sup>28</sup>

Further, pollution from gas stoves often has a disproportionate effect on households located in underserved communities, especially low-income households.<sup>29</sup> In some instances, low-income housing conditions may contribute to a greater risk of exposure to pollutants from gas stoves.<sup>30</sup> Those conditions include smaller unit sizes in multifamily housing, poor ventilation, use of a gas stove as a source of heat, and maintenance deficiencies.<sup>31</sup> In the District of Columbia, for example, children living in Wards 7 and 8 (neighborhoods afflicted with poor housing conditions, including inadequate ventilation) have higher asthma rates and higher asthma hospitalization rates than children living in higher income areas of the District.<sup>32</sup> Similarly, in California, low-income individuals are more likely to be exposed to other living conditions that contribute to asthma exacerbations, such as living in areas with greater exposure to air pollution from traffic and other sources.<sup>33</sup>

The pollution from gas stoves also contributes to the cumulative health burdens carried by underserved communities.<sup>34</sup> Black and Latino families are more likely to live in areas with high levels of outdoor air pollution, which can lead to cumulative health effects from the combined exposures to both indoor and outdoor pollutants.<sup>35</sup> Consequently, asthma rates are even higher in

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<sup>27</sup> Talor Gruenwald, et al., *Population Attributable Fraction of Gas Stove and Childhood Asthma in the United States*, 20(1) INT’L J. ENV’T RES. PUB. HEALTH 75 (2023), <https://doi.org/10.3390/ijerph20010075>.

<sup>28</sup> Devon C. Payne-Sturges et al., *Healthy Air, Healthy Brains: Advancing Air Pollution Policy to Protect Children’s Health*, 109 AM. J. PUB. HEALTH 550, 550 (2019), <https://ajph.aphapublications.org/doi/10.2105/AJPH.2018.304902>.

<sup>29</sup> Gary Adamkiewicz et al., *Moving Environmental Justice Indoors: Understanding Structural Influences on Residential Exposure Patterns in Low-Income Communities*, 101 AM. J. PUB. HEALTH S238, S240, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3222513/pdf/S238.pdf>; Aaron Regunberg, *Taking On ‘Now We’re Cooking with Gas’: How a Health-First Approach to Gas Stove Pollution Could Unlock Building Electrification* HAR. ENV’T L. REV. (2022), <https://harvardlr.com/2022/08/29/taking-on-now-were-cooking-with-gas-how-a-health-first-approach-to-gas-stove-pollution-could-unlock-building-electrification/>.

<sup>30</sup> See WEACT Pilot Study, *supra* note 20; Seals & Krasner, *supra* note 15, at 14; Am. Pub. Health Ass’n, *Policy Statement, Gas Stove Emissions Are a Public Health Concern: Exposure to Indoor Nitrogen Dioxide Increases Risk of Illness in Children, Older Adults, and People with Underlying Health Conditions* (Nov. 8, 2022), <https://www.apha.org/Policies-and-Advocacy/Public-Health-Policy-Statements/Policy-Database/2023/01/18/Gas-Stove-Emissions%5C>.

<sup>31</sup> See Seals & Krasner, *supra* note 15, at 14.

<sup>32</sup> Morgan Baskin, *Doctors Blame D.C.’s High Asthma Rates in Part on Poor Housing*, WASHINGTON CITY PAPER (May 22, 2019). See Daniel T. Mallese, et al., *Childhood Asthma Disparities – Race, Place, or Not Keeping Pace?*, JAMA PEDIATRICS (May 23, 2022), [https://jamanetwork.com/journals/jamapediatrics/article-abstract/2792668?utm\\_campaign=articlePDF&utm\\_medium=articlePDFlink&utm\\_source=articlePDF&utm\\_content=jamapediatrics.2022.1457](https://jamanetwork.com/journals/jamapediatrics/article-abstract/2792668?utm_campaign=articlePDF&utm_medium=articlePDFlink&utm_source=articlePDF&utm_content=jamapediatrics.2022.1457); *Children’s asthma rates linked with neighborhood characteristics, race, ethnicity*, HARV. T.H. CHAN. SCH. OF PUB. HEALTH (June 9, 2022), <https://www.hsph.harvard.edu/news/hsph-in-the-news/childrens-asthma-rates-linked-with-neighborhood-characteristics-race-ethnicity/>.

<sup>33</sup> Joelle Wolstein, et al., *Income Disparities in Asthma Burden and Care in California*, UCLA CTR. FOR HEALTH POL’Y RSCH.13 (2010), available at [https://healthpolicy.ucla.edu/publications/Documents/PDF/Income Disparities in Asthma Burden and Care in California.pdf](https://healthpolicy.ucla.edu/publications/Documents/PDF/Income%20Disparities%20in%20Asthma%20Burden%20and%20Care%20in%20California.pdf). Not surprisingly, in California, a higher proportion of lower-income adults experience frequent asthma symptoms compared to more affluent adults. *Id.* at 9.

<sup>34</sup> Lara P. Clark, *National Patterns in Environmental Injustice and Inequality: Outdoor NO<sub>2</sub> Air Pollution in the United States*, 9(4) PLoS ONE (2014), <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0094431>.

<sup>35</sup> *Id.*; *Disparities in the Impact of Air Pollution*, AM. LUNG ASS’N, <https://www.lung.org/clean-air/outdoors/who-is-at-risk/disparities> (last visited May 3, 2023).

these communities, leaving children there with the most severe asthma symptoms.<sup>36</sup> For example, in New York City, approximately 80 percent of hospital visits for asthma in children and young adults are for Black or Latino individuals, and some of the highest asthma-related death and disease rates in the country can be found in neighborhoods with large populations of low-income residents of color.<sup>37</sup>

In sum, the presence of gas stoves in households, even when not in use, can lead to indoor air pollution levels that pose a severe health risk, especially for particularly susceptible consumers, such as children, and for households in underserved communities.

### III. The States Have a Strong Interest in Supporting Healthy Housing Conditions.

Many states have recognized the health hazards posed by household gas appliances, including gas stoves, and have introduced and adopted policies and regulations that aim to mitigate those hazards by bolstering consumer awareness, ventilation standards, and/or supporting home electrification. Currently, more than 35 million people across 10 states and the District of Columbia live in a jurisdiction where local policies encourage healthy housing conditions, such as appliances that use cleaner fuel sources like electricity, which have fewer negative impacts on indoor air quality.<sup>38</sup> Although this movement had a number of driving factors, these cities and states recognize the range of benefits associated with increased indoor air quality for their residents such as better health and quality of life.<sup>39</sup>

These are examples of the efforts of some of our States:

- ***District of Columbia:*** The District of Columbia enacted legislation establishing a net-zero building code that will require all new buildings and substantial renovations to produce as much energy as they consume by 2026.<sup>40</sup> The legislation will also ban most

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<sup>36</sup> Kathleen Belanger et al., *Household Levels of Nitrogen Dioxide and Pediatric Asthma Severity*, 24 EPIDEMIOLOGY 320, 317-28 (2013), <https://perma.cc/75TQ-KWAN>. Black children are twice as likely to be hospitalized for asthma and four times as likely to die from asthma than white children. U.S. ENV'T PROT. AGENCY, FACT SHEET, CHILDREN'S ENVIRONMENTAL HEALTH DISPARITIES: BLACK AND AFRICAN AMERICAN CHILDREN AND ASTHMA, <https://www.epa.gov/children/childrens-environmental-health-disparities-black-and-african-american-children-and-asthma>, (last visited May 3, 2023).

<sup>37</sup> WEACT Pilot Study, *supra* note 20, at 8-9; *see also*, *Asthma*, COLUM. CENT. FOR CHILDREN'S ENV'T HEALTH, <https://www.publichealth.columbia.edu/research/centers/columbia-center-childrens-environmental-health/our-research/health-effects/asthma> (last visited May 4, 2023); NYC Health, *Disparities among Children with Asthma in New York City*, Epi Data Brief No. 126 (Sept. 2021), <https://www.nyc.gov/assets/doh/downloads/pdf/epi/databrief126.pdf>.

<sup>38</sup> Leah Louis-Prescott & Rachel Golden, *How Local Governments and Communities Are Taking Action to Get Fossil Fuels out of Buildings*, RMI (last updated: Mar. 30, 2023), <https://rmi.org/taking-action-to-get-fossil-fuels-out-of-buildings/>.

<sup>39</sup> *See id*; *see also* Sherri Billimoria, et al., *The Economics of Electrifying Buildings*, RMI (2018), <https://rmi.org/insight/the-economics-of-electrifying-buildings/>; *District of Columbia: Benefits of Household Electrification*, REWIRING AM., [https://content.rewiringamerica.org/fact-sheets/bringing-infrastructure-home/district\\_of\\_columbia-dc/bringing-infrastructure-home-fact-sheet-district\\_of\\_columbia-dc.pdf](https://content.rewiringamerica.org/fact-sheets/bringing-infrastructure-home/district_of_columbia-dc/bringing-infrastructure-home-fact-sheet-district_of_columbia-dc.pdf) (last visited May 4, 2023) (noting that the benefits of household electrification include lower monthly utility bills, job creation, cleaner indoor air and that District residents would save an average of \$378 per year on utility bills by switching to modern, electric appliances).

<sup>40</sup> Clean Energy DC Building Code Amendment Act of 2022, D.C. Act 24-528 (enacted July 27, 2022).

natural gas use in new buildings.<sup>41</sup> In addition, the D.C. Council recently introduced a bill to establish a Healthy Housing Program that would replace all gas appliances, including stoves, with electric appliances at no cost for 30,000 low- and moderate-income households.<sup>42</sup> The same bill would also increase the cost of a building permit for “an application which includes installation of an appliance or other system that combusts fossil fuels on site, including replacement of an existing appliance or other system that combusts fossil fuels on site, beginning on January 1, 2024.”<sup>43</sup>

- **New York:** New York recently enacted legislation<sup>44</sup> phasing out the use of fossil fuels in new buildings in furtherance of its climate and energy goals under the Climate Leadership and Community Protection Act.<sup>45</sup> The legislation promotes electrification-readiness and prohibits, with limited exceptions, the installation of fossil fuel equipment and building systems in new buildings seven stories and under by the end of 2025 and in all new buildings by the end of 2028. Legislation in support of building electrification has been lauded for its potential public health benefits, such as improved indoor air quality, as well as its greenhouse gas emissions reduction benefits.<sup>46</sup> As part of a suite of local legislation designed to reduce emissions and improve indoor air quality, the City of New York passed a 2021 local law prohibiting the construction of new buildings that include natural gas or other combustion fuels exceeding a set emissions limit.<sup>47</sup>
- **Massachusetts:** The Commonwealth has enacted legislation to promote the beneficial electrification of building thermal energy uses, including gas stoves, through adoption of a specialized stretch energy code.<sup>48</sup> The specialized code reduces emissions by including a net-zero building performance standard, together with restrictions or limitations on fossil fuel construction designed to achieve compliance with the Commonwealth’s statewide greenhouse gas emission limits and sector sub-limits.<sup>49</sup>
- **California:** The California Air Resources Board developed a comprehensive, peer-reviewed report on indoor air pollution from gas cooking to inform its process on

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<sup>41</sup> *Id.*

<sup>42</sup> Healthy Homes and Residential Electrification Amendment Act of 2023, DC Bill 25-0119 (introduced Feb. 2, 2023).

<sup>43</sup> *Id.* at Section 4(b).

<sup>44</sup> L. 2023, ch. 56, S. 4006-C/A. 3006-C, Part RR, <http://public.leginfo.state.ny.us/navigate.cgi?NVDTO>.

<sup>45</sup> L. 2019, ch. 106. New York’s Climate Leadership and Community Protection Act mandates economy-wide greenhouse gas emissions reductions of 40 percent by 2030 and 85 percent by 2050 from 1990 levels.

<sup>46</sup> See Joe Borrás, *American Lung Assoc. Supports All-Electric Building Act*, CLEANTECHNICA (Mar. 14, 2023), <https://cleantechnica.com/2023/03/14/american-lung-assoc-supports-ny-gas-stove-ban/>; *Concerned Health Professionals of NY Call for Passage of All-Electric Building Act*, FOOD & WATER WATCH (Jan. 17, 2023), <https://www.foodandwaterwatch.org/2023/01/17/concerned-health-professionals-of-ny-call-for-passage-of-all-electric-building-act/>.

<sup>47</sup> New York, N.Y., Local Law 2021/154 (enacted December 22, 2021). These restrictions will become effective for buildings shorter than seven stories on January 1, 2024, and for buildings seven stories or more in 2027. *Id.*

<sup>48</sup> Mass. Gen. Laws ch. 25A, §6 (14). See also 225 C.M.R. 22: MASSACHUSETTS RESIDENTIAL STRETCH ENERGY CODE AND MUNICIPAL OPT-IN SPECIALIZED CODE and 225 C.M.R. 23: MASSACHUSETTS COMMERCIAL STRETCH ENERGY CODE AND MUNICIPAL OPT-IN SPECIALIZED CODE available at <https://www.mass.gov/info-details/stretch-energy-code-development-2022#final-code-language-for-stretch-code-update-and-new-specialized-stretch-code->.

<sup>49</sup> Act Driving Clean Energy and Offshore Wind (MGL Session Laws of 2022, c.179) §84(d).

updating its indoor air quality guidelines for oxides of nitrogen (“NO<sub>x</sub>”) emissions.<sup>50</sup> The California Energy Commission (“CEC”) has funded numerous studies on indoor air quality issues and ventilation solutions.<sup>51</sup> In 2021, the CEC conducted a study of its Energy Efficiency Standards within the California Building Code to see if they were sufficient to protect Californians from pollutants generated during cooking, particularly with gas burners.<sup>52</sup> In that study, CEC’s research team concluded that kitchen ventilation requirements in the state building standards should be tightened to require better performance, and the performance standards should be measured in “capture efficiency.”<sup>53</sup> The CEC research team further concluded that these performance standards should allow for other equivalent airflow measurements, such as cubic feet per minute (“CFM”), because the number of available ventilation products with capture efficiency results may be limited.<sup>54</sup> Thereafter, the CEC issued its updated 2022 Energy Efficiency Standards, and, as relevant here, updated its performance standards for kitchen ventilation.<sup>55</sup> The CEC is also implementing the Equitable Building Decarbonization program pursuant to AB 209 (Chapter 251, Statutes of 2022). This program consists of a substantial investment of state resources to promote the use of clean fuel sources, including the direct installation of decarbonization measures and financial incentives for low-carbon building technologies, with a primary focus on low-to-moderate income residents in under-resourced communities and buildings owned or managed by California Native American Tribes and Tribal members.<sup>56</sup>

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<sup>50</sup> See *Residential Cooking Exposure Study Finds Unhealthful Levels*, CAL. AIR RES. BD., [https://ww2.arb.ca.gov/sites/default/files/2020-03/cookingstudy\\_0.pdf](https://ww2.arb.ca.gov/sites/default/files/2020-03/cookingstudy_0.pdf) (last visited May 4, 2023); *Indoor Air Pollution from Cooking*, CAL. AIR RES. BD., <https://ww2.arb.ca.gov/resources/documents/indoor-air-pollution-cooking> (last visited May 4, 2023); *Indoor Air Quality Research*, CAL. AIR RES. BD., <https://ww2.arb.ca.gov/resources/documents/indoor-air-quality-research> (last visited May 4, 2023); *CARB Research Seminar: Kitchen Ventilation Solutions to Indoor Air Pollution Hazards from Cooking*, CAL. AIR RES. BD. (2019), <https://www.youtube.com/watch?v=qmLifFYrLZU> [hereinafter “CARB Research Seminar”].

<sup>51</sup> See, e.g., Wanyu R. Chan et al., *Ventilation and Indoor Air Quality in New California Homes with Gas Appliances and Mechanical Ventilation*, CEC-500-2020-023 (2020), <https://www.energy.ca.gov/sites/default/files/2021-05/CEC-500-2020-023.pdf>; Brett C. Singer, et al., *Natural Gas Variability in California: Environmental Impacts and Device Performance*, CEC-500-2006-110 (2007), <https://www.osti.gov/servlets/purl/980736>; Singer et al., *Natural Gas Variability in California: Environmental Impacts and Device Performance: Experimental Evaluation of Installed Cooking Exhaust Fan Performance*, CEC-500-2013-033 (2017); Brett C. Singer, et al., *Emissions, indoor air quality impacts, and mitigation of air pollutants from natural gas appliances*. CEC-500-2017-034 (2017); Fisk, W.J. et al, *Integrating Energy and IEQ Retrofits in Apartments*, CEC-500-2014-084 (2014).

<sup>52</sup> Cal. Energy Comm’n, *Effective Kitchen Ventilation for Healthy Zero Net Energy Homes with Natural Gas*, CEC-500-2021-005, at 3 (2021), <https://www.energy.ca.gov/sites/default/files/2021-05/CEC-500-2021-005.pdf>.

<sup>53</sup> *Id.* at 67; “Capture efficiency” is a range hood’s ability to remove the harmful air pollutants and expel them outdoors. Yang-Seon Kim et al., *Development of A Standard Capture Efficiency Test Method for Residential Kitchen Ventilation*, LAWRENCE BERKELEY NAT’L LAB. 1 (2019), [https://escholarship.org/content/qt292006xg/qt292006xg\\_noSplash\\_60749f60aa790f934b1e591a58f25219.pdf?t=px54f](https://escholarship.org/content/qt292006xg/qt292006xg_noSplash_60749f60aa790f934b1e591a58f25219.pdf?t=px54f).

<sup>54</sup> Cal. Energy Comm’n, *supra* note 52, at 67.

<sup>55</sup> Cal. Energy Comm’n, *2022 Building Energy Efficiency Standards for Residential and Nonresidential Buildings*, §§ 150.0(o)1G-K, 150.0-G, 160.2-G, 160.2, (2022), [https://www.energy.ca.gov/sites/default/files/2022-12/CEC-400-2022-010\\_CMF.pdf](https://www.energy.ca.gov/sites/default/files/2022-12/CEC-400-2022-010_CMF.pdf); see also Cal. Energy Comm’n, *Ventilation and IAQ Mandatory Requirements* (2022) (explaining the updates to the kitchen ventilation performance standards).

<sup>56</sup> *Equitable Building Decarbonization Program*, CAL. ENERGY COMM’N, <https://www.energy.ca.gov/programs-and-topics/programs/equitable-building-decarbonization-program> (last visited May 4, 2023).

- **Oregon:** The Multnomah County (Oregon) Health Department released a study last November recommending transitioning away from gas stoves, and stating that “[g]as cooking activities cause pollutants, including NO<sub>2</sub>, CO and PM<sub>2.5</sub>, which can reach levels that affect human health.”<sup>57</sup> The Oregon Health Authority has advised the public that when wildfire smoke is in the air, people should reduce other sources of indoor air pollution, smoke and dust, including burning gas and propane.<sup>58</sup>
- **Washington:** In Washington State, the state building code requires that single-family homes and multi-family buildings have range hoods with high airflow (CFM) requirements for gas (250 CFM) and electric (160 CFM) stoves.<sup>59</sup>

#### **IV. The States Support Solutions that will Mitigate the Health Hazards Associated With Gas Stoves Emissions.**

Under the Consumer Product Safety Act (“CPSA”), the CPSC is tasked with reducing the risk of injuries and deaths from consumer products.<sup>60</sup> The CPSC can issue mandatory or voluntary standards or ban consumer products if no feasible standard would adequately protect the public.<sup>61</sup> Standards may include “performance requirements” or requirements that a product “be marked with or accompanied by clear and adequate warnings . . .”.<sup>62</sup>

Due to the elevated levels of indoor air pollution and associated health impacts caused by gas stoves demonstrated by these comments and others in response to this Request for Information, the States urge the CPSC to take action that would reduce the health hazards posed by these appliances. The CPSC may do this by developing regulations, including performance standards for active and off modes and ventilation requirements, that would drastically reduce the emissions from gas stoves. In addition, the States urge the CPSC to focus on increasing consumer knowledge about the health hazards associated with gas stoves through warning label requirements and greater public education and outreach.

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<sup>57</sup> Multnomah Cnty. Health Dep’t, *A Review of the Evidence: Public Health and Gas Stoves*, 4 (Nov. 2022), available at [https://www.opb.org/pdf/Multnomah%20County%20Health%20Department%20Gas%20Stoves%20Health%20Risk%20Report%202022\\_1668121151633.pdf](https://www.opb.org/pdf/Multnomah%20County%20Health%20Department%20Gas%20Stoves%20Health%20Risk%20Report%202022_1668121151633.pdf)

<sup>58</sup> *Fact Sheet: Hazy, smoky air: Do you know what to do?*, OR. HEALTH AUTH., <https://sharedsystems.dhsosha.state.or.us/DHSForms/Served//le8622.pdf> (last visited May 5, 2023).

<sup>59</sup> Wash. State Bldg. Code Council, Wash. 2021 Int’l Residential Code, at WSR 23-02-058, Table M1505.4.4.1 and Table M1505.4.4.3 (2023), [https://www.sbccc.wa.gov/sites/default/files/2023-01/WSR\\_23-02-058\\_OTSA4043.5\\_Combined.pdf](https://www.sbccc.wa.gov/sites/default/files/2023-01/WSR_23-02-058_OTSA4043.5_Combined.pdf); Wash. State Bldg. Code Council, Wash. 2021 Int’l Residential Code, at WSR 23-02-055, Table 403.4.7 and 403.4.7.3 (2023), [https://sbccc.wa.gov/sites/default/files/2023-01/2021%20IMC\\_CR103\\_combined.pdf](https://sbccc.wa.gov/sites/default/files/2023-01/2021%20IMC_CR103_combined.pdf).

<sup>60</sup> 15 U.S.C. § 2051; *Who We Are - What We Do for You*, CPSC, <https://www.cpsc.gov/Safety-Education/Safety-Guides/General-Information/Who-We-Are---What-We-Do-for-You> (last visited May 4, 2023).

<sup>61</sup> 15 U.S.C. § 2056 (providing that standards “shall be reasonably necessary to prevent or reduce an unreasonable risk of injury associated” with a product).

<sup>62</sup> *Id.* § 2056(a)(1)-(2).

## A. CPSC Should Issue Performance Standards for Gas Stoves.

Under the CPSA, the CPSC can develop performance standards for products either by engaging with stakeholders in a voluntary process or by issuing mandatory standards. The CPSC may issue a mandatory standard only if there is no existing voluntary standard or, if there is an existing one, when the CPSC finds that any applicable voluntary standard is “not likely to result in the elimination or adequate reduction of such risk of injury” or that “it is unlikely that there will be substantial compliance with such voluntary consumer product safety standard.”<sup>63</sup> If the CPSC determines a mandatory standard is needed, the CPSC must also find that the mandatory standard it is proposing is “reasonably necessary to prevent or reduce an unreasonable risk of injury associated with the product.”<sup>64</sup> The CPSC has used this authority to regulate the health risks associated with children’s toys containing lead<sup>65</sup> and CO from portable generators.<sup>66</sup> Recently, the CPSC has proposed mandatory standards that will limit CO emissions from portable generators and require automatic shut-off valves for portable generators to address acute CO poisoning.<sup>67</sup>

The CPSC should develop and implement performance standards for these consumer products, including proper ventilation standards and safety standards as discussed below, to protect consumers from the demonstrated health hazards associated with these household appliances.

### 1. Mandatory Ventilation Standards that Ensure a Reduction in Indoor Air Pollutants are Necessary to Protect Human Health.

CPSC should implement uniform mandatory standards for gas stove ventilation. Range hoods are devices installed above cook stoves and ovens: they are also known as kitchen hoods, exhaust hoods, fan hoods, and extractor hoods.<sup>68</sup> Properly designed, installed, and maintained ventilation systems like range hoods, when used, can reduce exposure to pollution from gas stoves, and therefore, are likely to reduce some of their associated health hazards.<sup>69</sup> In 1995, EPA and CPSC recognized range hoods that vent to the outdoors reduces exposure to pollutants from cooking with a gas stove.<sup>70</sup>

Unlike other major gas appliances, however, there is no current uniform requirement for gas stoves to be vented outdoors.<sup>71</sup> This has resulted in a patchwork of venting requirements across

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<sup>63</sup> *Id.* § 2058(f)(3)(D) (emphasis added). The CPSC must also make this determination if, after it proposes a mandatory standard, the industry submits a finalized voluntary standard in response. *Id.* § 2058(b)(2).

<sup>64</sup> *Id.* § 2056(a).

<sup>65</sup> 16 C.F.R. § 1303.

<sup>66</sup> *Id.* § 1407.3 (requiring manufacturers of portable generators to provide specific CO poisoning hazard labels on the product and on the packaging).

<sup>67</sup> 88 Fed. Reg. 24,346, 24,366 (Apr. 20, 2023) (noting that safety standards are required to address the “unreasonable risk of injury and death associated with acute carbon monoxide (CO) poisoning from portable generators”).

<sup>68</sup> Thomas J. Phillips, *Ducted Range Hoods: Recommendations for New and Existing Homes*, ROCIS (Dec. 2019), <https://roci.org/kitchen-range-hoods/kitchen-range-hoods-issue-brief/>.

<sup>69</sup> Seals & Krasner, *supra* note 15, at 16.

<sup>70</sup> THE INSIDE STORY, *supra* note 5, at 16.

<sup>71</sup> Seals & Krasner, *supra* note 15, at 16.

the country,<sup>72</sup> with many state or local building codes not requiring range hoods to vent outdoors.<sup>73</sup> For instance, many homes have recirculating range hoods.<sup>74</sup> These recirculating range hoods shift pollutants around the home, rather than capturing and moving them outdoors.<sup>75</sup> These recirculating range hoods are ineffective at removing the pollutants associated with cooking, and thus, are not as health protective as range hoods that vent directly outside.<sup>76</sup>

Even in states where outdoor venting of gas stoves is required, there may not be standards to ensure venting is adequate or automatic or both.<sup>77</sup> Range hoods have a wide range of pollution capture rates.<sup>78</sup> Thus, a standard that increases a range hood's ability to capture relevant air pollutants, such as NO<sub>2</sub> and other gas stove pollutants, and expel those pollutants outdoors would ensure range hoods are adequately reducing indoor emissions.

Additionally, those ventilation systems that are currently in place are often underused. Studies show that many people do not use their range hoods when cooking due to the noise from ventilation units and/or lack of knowledge about the importance of always using ventilation when a gas stove is on.<sup>79</sup> Current data estimates that roughly 10 to 25 percent of households use their range hoods while cooking.<sup>80</sup> Additional studies have shown that people actually use their range hoods far less often than they say they use them,<sup>81</sup> and that higher rates of range hood use for cooking occurs in homes with higher incomes and education level.<sup>82</sup> We recommend the CPSC require an automatic mechanism for range hoods to help ensure their effectiveness.

Under current voluntary standards, range hoods neither have minimum levels of capture efficiency, nor are required to turn on automatically when a gas stove is in use.<sup>83</sup> Without such

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<sup>72</sup> Thus, although a consistent requirement for ventilation standards is necessary, the CPSC may run into barriers due to the complexity and variety of standards that exist nationwide. *See infra* note 76.

<sup>73</sup> Seals & Krasner, *supra* note 15, at 16; *see also* Nate Seltenrich, *Take Care in the Kitchen: Avoiding Cooking-Related Pollutants*, 122(6) ENV'T HEALTH PERSPECTIVES A154, A156 (2014), available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4050506/pdf/ehp.122-A154.pdf> (“[A] confusing array of local, state, and international building codes (on which many domestic codes are based) contain differing ventilation standards, if they require them at all.”); *see also* *Do Gas Ranges Require Venting?*, ProLine Range Hoods, <https://www.prolinerangehoods.com/blog/do-gas-ranges-require-venting/> (last visited May 4, 2023)

<sup>74</sup> Seltenrich, *supra* note 73.

<sup>75</sup> Figueroa & Lienke, *supra* note 17, at 12.

<sup>76</sup> Yang-Seon Kim et al., *Development of A Standard Capture Efficiency Test Method for Residential Kitchen Ventilation*, LAWRENCE BERKELEY NAT'L LAB. 1 (2019), [https://escholarship.org/content/qt292006xg/qt292006xg\\_noSplash\\_60749f60aa790f934b1e591a58f25219.pdf?t=px54f](https://escholarship.org/content/qt292006xg/qt292006xg_noSplash_60749f60aa790f934b1e591a58f25219.pdf?t=px54f).

<sup>77</sup> Seals & Krasner, *supra* note 15, at 16.

<sup>78</sup> Figueroa & Lienke, *supra* note 17, at 9.

<sup>79</sup> Brett C. Singer et al., *Performance of Installed Cooking Exhaust Devices*, INDOOR AIR (2012) <https://www.osti.gov/servlets/purl/1055699>.

<sup>80</sup> *Id.* at 4.

<sup>81</sup> W.R. Chan, et al., *Ventilation and Indoor Air Quality in New California Homes with Gas Appliances and Mechanical Ventilation*, LAWRENCE BERKELEY NAT'L LAB. (2023), <https://escholarship.org/content/qt44g399sb/qt44g399sb.pdf> (revealing that people use their range hoods less than half the time they say they do).

<sup>82</sup> Haoran Zhao et al., *Factors Impacting Range Hood Use in California Houses and Low-Income Apartments*, INT'L J. OF ENV'T RSCH. & PUB. HEALTH, 8 (2020).

<sup>83</sup> Residential ducted range hoods are subject to voluntary standards that regulate noise and airflow. *See* CARB Research Seminar, *supra* note 50. Residential ducted range hoods are covered under ANSI/ASHRAE Standard 62.2.

measures, voluntary standards cannot claim to be effectively eliminating indoor air pollutants sufficiently to be health protective. The CPSC's current proposal to mandate CO emission limits and an automatic shut off requirement for portable generators highlights the CPSC's authority under Sections 7 and 9 of the CPSA to issue mandatory requirements when voluntary standards are inadequate.<sup>84</sup> Thus, the CPSC should use its authority to issue mandatory standards for range hoods, requiring them to vent externally and meet performance standards that focus on reducing concentrations of toxic air pollutants to below unsafe levels. Such standards should set a capture efficiency target to reduce unacceptably high levels of the relevant pollutants, such as NO<sub>2</sub> and PM<sub>2.5</sub>.<sup>85</sup> To address the problem of non-use, range hoods should turn on automatically every time a gas stove is being used.<sup>86</sup> Range hoods meeting these mandatory standards should be required for all new gas stoves<sup>87</sup> because they are reasonably necessary to help protect consumers from the health harms associated with gas stove pollution.

## **2. The CPSC Should Develop Voluntary and/or Mandatory Safety or Performance Standards for Gas Stoves.**

However, even proper ventilation will not completely eliminate the indoor air pollutants emitted by gas stoves, with the concomitant risks to health. One study found that the concentration of NO<sub>2</sub> emitted from certain gas stoves rose above the EPA outdoor standards for air quality within minutes of being turned on.<sup>88</sup> Even when not in use, gas stoves can leak low levels of methane gas and benzene.<sup>89</sup> This would mean that a range hood would have to be

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*See Standards 62.1 & 62.2*, ASHRAE (last visited May 4, 2023). Researchers at the Lawrence Berkeley National Laboratory found that range hoods operating at the minimum air flow requirement have capture efficiencies below 25 percent when front burners are used, and sometimes even lower. CARB Research Seminar. The current voluntary standard does not identify minimum targets for capture efficiency but is intended to quantify the capture efficiency of range hoods. *See ASTM E3087-18: Standard Test Method for Measuring Capture Efficiency of Domestic Range Hoods*, ANSI Webstore, <https://webstore.ansi.org/Standards/ASTM/ASTME308718> (last visited May 4, 2023).

<sup>84</sup> 88 Fed. Reg. at 24,366 (“The Commission has assessed the effectiveness of the CO-mitigation provisions in the voluntary standards and preliminarily concludes that [they are not] adequate to address the unreasonable risk of injury associated with portable generators... The Commission concludes a mandatory standard is required to reduce the significant hazards associated with this consumer product.”). 15 U.S.C. § 2056(a); 15 U.S.C. § 2058.

Wanyu Chan et al., LAWRENCE BERKELEY NAT'L LAB., *Simulations of Short-Term Exposure to NO<sub>2</sub> and PM<sub>2.5</sub> to Inform Capture Efficiency Standards 2* (2020), <https://escholarship.org/content/qt6tj6k06j/qt6tj6k06j.pdf> (California simulation predicted that range hoods would need a minimum capture efficiency of 70 percent and 60 percent to avoid the dangerous high levels of NO<sub>2</sub> and PM<sub>2.5</sub>).

<sup>86</sup> *See* Mia Nakajima, et al. to Cal. Energy Comm'n, Memo. on Market Analysis in Support of Single-family and Updated Multifamily Range-Hood Requirements (Dec. 30, 2020).

<sup>87</sup> Requiring gas stoves to be sold with ducted range hoods will ensure consumers have the product equipment they need to vent their stoves outside and prevent indoor air quality from reaching dangerous levels. However, exemptions may be required to allow for equitable access due to potential cost barriers.

<sup>88</sup> Lebel, et al., *supra* note 7, at 2529.

<sup>89</sup> Lebel, et al., *supra* note 22, at 15828-38. Scientists have yet to determine whether the gas stove itself is leaking or whether the leak is coming from the stove's connection to the gas line or both. *Id.*; Mark Wilson, *Your gas stove is leaking methane, even when it's turned off*, FASTCOMPANY (Jan. 28, 2022), <https://www.fastcompany.com/90716674/your-gas-stove-is-leaking-methane-even-when-its-turned-off>. In addition to the methane emitted from gas stoves while not in use, methane emissions from leaks in the physical infrastructure necessary to deliver natural gas to the end use customer is a substantial contributor to the nation's total greenhouse gas emissions. *See Methane Leaks Erase Some of the Climate Benefits of Natural Gas*, E&E NEWS (May 5, 2020) (citing a national study finding that the amount of methane released directly into the atmosphere from leaks on urban

turned on constantly to reduce the toxic air pollutants in order to be sufficiently health protective. Therefore, in addition to performance standards for gas stove ventilation, general performance standards for gas stoves, such as automatic shut-off valves and pollutant sensors (other than for carbon monoxide), are also necessary to prevent or reduce the health risks from gas stoves.

Currently, gas stoves (unlike furnaces and water heaters) are not required to meet any voluntary or mandatory safety or performance standards related to emissions, other than requirements related to CO concentrations.<sup>90</sup> Since there are no voluntary emission standards for gas stoves, the CPSC may either work with industry to adopt voluntary standards or promulgate a mandatory performance standard that would adequately reduce the health risks from gas stove pollution emissions.<sup>91</sup> Developing voluntary standards may be a viable option that could result in standards that are supported by industry.<sup>92</sup> However, attempts to develop voluntary standards can stall or result in inadequate standards that will not protect against the health risks to consumers.<sup>93</sup> Due to this possibility and the importance of protecting the health of consumers, the CPSC should initiate a rulemaking to develop mandatory gas stoves standards.

Since there is no voluntary standard for gas stove emissions of NO<sub>2</sub>, PM<sub>2.5</sub>, formaldehyde, or benzene, the CPSC could issue mandatory standards if it finds that doing so is reasonably necessary to make gas stoves safe for consumers.<sup>94</sup> Given the demonstrated health risks described above and elsewhere, the CPSC could reasonably find that gas stoves pose a risk to human health, that the likelihood of adverse health effects is unacceptably high, and that the burden of mandatory standards on manufacturers and consumers would be justified when weighed against those health risks.<sup>95</sup>

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gas distribution systems more than negates the greenhouse gas emissions reductions achieved in the United States due to switching from coal to natural gas as an energy source) (Study available at: <https://www.science.org/doi/10.1126/sciadv.aaz5120>).

<sup>90</sup> See Brady Seals, *Reality Check: Gas Stoves Are a Health and Climate Problem*, RMI (Feb. 15, 2023), <https://rmi.org/gas-stoves-health-climate-asthma-risk/>. See also CSA/ANSI Z21.1- 2018/CSA 1.1-2018: Household Cooking Gas Appliances (2018), <https://webstore.ansi.org/Standards/CSA/CSAANSIZ212018> (limiting carbon monoxide in flue gas from gas stoves to 800 ppm).

<sup>91</sup> See *supra* Section IV(A).

<sup>92</sup> U.S. GOV'T ACCOUNTABILITY OFF., GAO-12-582, CONSUMER PRODUCT SAFETY COMMISSION: A MORE ACTIVE ROLE IN VOLUNTARY STANDARDS DEVELOPMENT SHOULD BE CONSIDERED 7-8 (2012) (providing that industry participants prefer a voluntary standard process because it is “faster than mandatory rulemaking”, allows for “greater industry input”, and can yield a greater “likelihood of compliance”).

<sup>93</sup> Figueroa & Lienke, *supra* note 17, at 10-11 (noting the deficiencies of voluntary standards such as difficulty to determine compliance rates as well as how slow the process can be when there is resistance to change which has led to some voluntary processes lasting 20 or more years).

<sup>94</sup> 15 U.S.C. § 2056(a).

<sup>95</sup> See, e.g., *Aqua Slide 'N' Dive Corp. v. Consumer Prod. Safety Com.*, 569 F.2d 831, 839 (5th Cir. 1978) (“[N]ecessity for the standard depends upon the nature of the risk, and the reasonableness of the risk is a function of the burden a standard would impose on a user of the product.”); *Southland Mower Co. v. Consumer Prod. Safety Comm'n*, 619 F.2d 499, 508–09 (5th Cir. 1980) (quoting *Aqua Slide*, 569 F.2d at 839); *O’Keeffe’s, Inc. v. Consumer Prod. Safety Comm’n*, 92 F.3d 940, 942 (9th Cir. 1996) (requiring the CPSC to determine that the standard is reasonably necessary to “eliminate or reduce an unreasonable risk of injury associated with the product; that the expected benefits of the amendment bear a reasonable relationship to its costs; and that the amendment imposes the ‘least burdensome’ requirement that prevents or adequately reduces the risk of injury under consideration”) (quoting 15 U.S.C. 2059(f)(3), now codified in 15 U.S.C. 2058(f)(3)(F)).

Mandatory performance standards could include, among others, standards for gas stoves to address methane leakage, including automatic shut-off valves, and standards that address the elevated levels of hazardous pollution emissions, including sensors. For instance, a potentially important requirement could require gas stoves to include sensors that would alert users (either visually or aurally) when NO<sub>2</sub>, CO, or other gas stove pollutants approach unsafe concentrations. This would let consumers know when they must increase ventilation, turn off a burner, and/or have the stove or connections repaired, and, in the most severe circumstances, safely evacuate the premises and seek emergency aid.

In developing mandatory standards, we encourage the CPSC to consider the costs of implementation. Considering the disproportionate impacts gas stove emissions have on underserved communities, it is important that the implementation of mandatory standards does not add to the burden already faced by those communities.<sup>96</sup> Therefore, when developing standards, it will be important to consider options to protect these communities while also making access achievable for them.

## **B. The CPSC Should Work to Increase Consumer Awareness of the Health Hazards Associated with Gas Stoves So Consumers Can Protect Themselves.**

In addition to issuing performance standards, the CPSC can and should act to reduce the risks posed by gas stoves by working to increase consumer awareness of gas stove emissions and their associated health impacts. There are multiple ways in which the CPSC can increase consumer awareness of the hazards associated with gas stove use so that consumers can make better informed decisions about whether to purchase a gas stove or an electric/induction stove,<sup>97</sup> whether to install an externally venting range hood, and whether to implement other potential solutions to remediate the hazards of gas stoves. The CPSC can work to increase consumer awareness by doing any or all of the following: (1) requiring warning labels on gas stoves that provide more information on their health risks; (2) conducting public education campaigns resulting in public engagement opportunities; and (3) producing, and making easily accessible, educational materials on the health effects of gas stove emissions, the importance of external ventilation for these products, and additional ways consumers can reduce the negative impact of gas stoves.

### **1. Warning Labels for Gas Stoves Should Include More Information.**

The CPSC has the authority to require warning labels on gas stoves designed to inform consumers of the health risks posed by the indoor air pollution they cause.<sup>98</sup> Since there are currently no voluntary standards requiring warning labels on stoves regarding the health hazards posed by NO<sub>2</sub> and other gas stove pollutants aside from carbon monoxide, the CPSC can and

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<sup>96</sup> See Carmelita Miller, et al., *Equitable Building Electrification: A Framework for Powering Resilient Communities*, THE GREENLINING INST. (2019), [https://greenlining.org/wp-content/uploads/2019/10/Greenlining\\_EquitableElectrification\\_Report\\_2019\\_WEB.pdf](https://greenlining.org/wp-content/uploads/2019/10/Greenlining_EquitableElectrification_Report_2019_WEB.pdf).

<sup>97</sup> Notably, the Inflation Reduction Act of 2022 (Pub. L. 117–169) offers homeowners a rebate of up to \$840 on the purchase of a new electric stove, cooktop, range.

<sup>98</sup> 15 U.S.C. § 2056(a)(2).

should issue a mandatory standard.<sup>99</sup> A more expansive warning label is necessary to prevent or reduce an unreasonable risk of injury.<sup>100</sup>

Not only should gas stoves be made safer for consumers, but consumers should be provided with sufficient information about potential health hazards and risks in advance of any purchase so they can make informed decisions about whether or not to install a gas stove in their home. Proper labeling on gas stoves would represent an important step in helping to educate consumers about the health risks associated with gas stoves. Providing this information upfront is essential to enabling consumers to make a fully informed decision.

Several current manufacturers of gas stoves do not include warnings about the health risks of the NO<sub>2</sub> emitted by these appliances. Although some gas appliances instruct consumers to use proper ventilation, there is little explanation of why this is necessary and how ventilation can protect one's health.<sup>101</sup> Current gas stove manuals typically only warn of the harm to pet birds that could be caused by the fumes given off by the stove; they also warn of the potential for fires, explosions, or property damage.<sup>102</sup> Further, they warn against using the appliance as a space heater, but only because of the risk of carbon monoxide poisoning. They do not warn against the additional health risks caused by NO<sub>2</sub> and other pollutants when the appliance is on for an extended period of time with improper ventilation.<sup>103</sup>

Manufacturers should be required to list all the potential gases emitted from a gas stove, the potential health risks associated with those gases, and that emissions can cause concentrations of indoor air pollution to reach levels above what is allowed by EPA for outdoor levels. Consumers should be able to decide for themselves whether the cooking benefits of a gas stove outweigh the health risks posed by these appliances, especially if their household consists of individuals with pre-existing respiratory conditions, children, or the elderly.

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<sup>99</sup> See *supra* Section IV(A) (discussion regarding CPSC authority to issue mandatory standards if no voluntary standards exist).

<sup>100</sup> 15 U.S.C. § 2056(a).

<sup>101</sup> See, e.g., *Gas Range Owner's Manual*, SEARS, at 2

[https://c.searspartsdirect.com/mmh/lis\\_pdf/OWNM/L0709189.pdf](https://c.searspartsdirect.com/mmh/lis_pdf/OWNM/L0709189.pdf) (“Gas appliances cause minor exposure to four of these substances, namely benzene, carbon monoxide, formaldehyde and soot. . . Exposure to these substances can be minimized further by venting with an open window or using a ventilation fan or hood.”) (last visited May 4, 2023); *LG Gas Range Owner's Manual*, LG [https://manuals.plus/\\_lg/gas-range-manual#important\\_safety\\_instructions](https://manuals.plus/_lg/gas-range-manual#important_safety_instructions) (“Gas appliance can cause minor exposure to four potentially harmful substances, namely benzene, carbon monoxide, formaldehyde, and soot. . .Exposure to these substances can be minimized by opening windows or using a ventilation fan or hood”) (last visited May 4, 2023) [hereinafter “LG Gas Stove Warning Label”].

<sup>102</sup> See, e.g., LG Gas Stove Warning Label, *supra* note 101 (“If you have pet birds, move them to another well-ventilated room. The health of some birds is extremely sensitive to the fumes given off during the Self Clean cycle of any range.”); *id.* (“If the information in these instructions is not followed exactly, a fire or explosion may result causing property damage, personal injury or death.”); *Gas Range User Instructions*, WHIRLPOOL, at 7, <https://www.whirlpool.com/content/dam/global/documents/201111/owners-manual-W10394387-RevA.pdf> (“Exposure to the fumes may result in death of certain birds. Always move birds to another closed and well-ventilated room.”) (last visited May 4, 2023) [hereinafter “Whirlpool Gas Stove Warning Label”].

<sup>103</sup> See, e.g., LG Gas Stove Warning Label, *supra* note 101 (“NEVER use this appliance as a space heater to heat or warm the room. Doing so may result in carbon monoxide poisoning. . .”); Whirlpool Gas Stove Warning Label, *supra* note 102, at 3 (same language).

At a minimum, the CPSC should require gas stoves to include warning labels that indicate that the stoves emit harmful air pollutants such NO<sub>2</sub> and PM<sub>2.5</sub>, sometimes at levels that exceed outdoor protective standards. In addition, warning labels should explain the health dangers associated with each of these specific pollutants emitted by gas stoves and instruct consumers to use adequate ventilation that routes indoor pollution out of the home in order to mitigate the health risks.

## **2. The CPSC Should Launch an Accessible Public Education Campaign.**

Currently, the CPSC website does not include materials regarding the health hazards associated with gas stove emissions. The CPSC has the authority to disclose such safety information to consumers.<sup>104</sup> Unfortunately, many consumers and retailers are unaware of the health effects of cooking with gas,<sup>105</sup> so the CPSC should consider launching a public education campaign to inform the public about those health hazards and the range of mitigating measures that consumers can take to minimize these health risks.

The Consumer Product Safety Improvement Act of 2008 required the CPSC to establish a publicly-available, searchable database on the safety of consumer products that is accessible<sup>106</sup> on the CPSC's website.<sup>107</sup> The database allows consumers to "submit reports of harm," which are shared with both manufacturers and the public.<sup>108</sup> However, neither the database nor the CPSC's website currently provide information about the long-term or short-term health impacts of NO<sub>2</sub> or PM<sub>2.5</sub> emissions from gas stoves, possibly because consumers are unaware of these dangers.

The States urge the CPSC to better inform and educate consumers about the risks associated with these products directly and through traditional means such as public workshops, public service materials, and fact sheets available on its website in a range of different languages, and/or via social media.<sup>109</sup> The CPSC should also work with state and local governments and private and nonprofit organizations to facilitate this education and outreach. Methods of disclosure could include: news releases,<sup>110</sup> videos, pamphlets, social media spots, "hotlines," and through its own website. The CPSC should also consider educating the public through special programs and workshops, or through a nationwide campaign on gas stove hazards and how to mitigate them.

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<sup>104</sup> Public disclosure of certain information is subject to confidentiality and other restrictions, but the CPSC may initiate "public disclosure of information that reflects on the safety of a consumer product or class of consumer products" so long as it establishes "procedures designed to ensure that such information is accurate and not misleading." 15 U.S.C. § 2055(b)(6).

<sup>105</sup> Casale, *supra* note 11.

<sup>106</sup> The information should be provided in a range of different languages, in easy-to-understand language, and be made available in auditory or video forms to ensure access for people with disabilities.

<sup>107</sup> P.L. 110-314, Title II, § 212(a), inserting 15 U.S.C. § 2055a.

<sup>108</sup> *About Saferproducts.gov*, CPSC <https://www.saferproducts.gov/About> (last visited May 4, 2023)

<sup>109</sup> See 15 U.S.C. § 2055a (a)(1) (stating that "[s]ubject to the availability of appropriations, the [CPSC] shall, in accordance with the requirements of this section, establish and maintain a database on the safety of consumer products . . . , that is – (A) publicly available; (B) searchable; and (C) accessible through the Internet website of the Commission").

<sup>110</sup> During 1996 the CPSC issued 195 news releases, which it claimed was the most ever issued in a single year. CONSUMER PRODUCT SAFETY COMM'N, ANNUAL REPORT, 17 (1996).

Through this educational campaign, the CPSC should inform consumers about the health hazards of gas stoves, making clear that gas stoves negatively impact indoor air quality both during use and while not in use. Additionally, the CPSC should inform consumers about the importance of external ventilation. Finally, CPSC should inform consumers about additional ways consumers can reduce the negative impact of gas stoves, including using an electric kettle, portable induction cooktop, slow cooker, pressure cooker, rice cooker, toaster oven, air fryer, or microwave, and using air purifiers matched to the size of the room that have a high clean air delivery rate.<sup>111</sup>

It is important that the CPSC's educational efforts are easily accessible to everyone. The information should be accessible in different languages, be easy to understand using plain language, and be made available in various media to account for technological barriers. We also urge the CPSC to conduct community outreach and partner with community-based organizations, consumer advocacy groups, housing organizations, tribal governments, and other local groups to facilitate the dissemination of the information.

The States applaud the CPSC for initiating this information-gathering process and urge the CPSC to share the information learned about the hazards of gas stoves with the public both widely and in a way that is accessible to all segments of the population.

### **C. Benefits of Reducing Gas Emissions through Electrification and Energy Efficiency Standards.**

In addition to the solutions described above, the States take this opportunity to highlight that studies have shown that the most health protective option for U.S. households is building electrification, as supported by policy and legislative efforts of many of our States.<sup>112</sup> Electric and induction stoves are alternatives to gas stoves that do not produce combustion emissions,<sup>113</sup> and, therefore, do not contribute to poor indoor air quality to the same extent as gas stoves.<sup>114</sup> Homes with gas stoves contain higher levels of NO<sub>2</sub> and PM<sub>2.5</sub> when compared to homes with electric stoves.<sup>115</sup> For instance, homes with gas stoves consistently have NO<sub>2</sub> concentrations that

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<sup>111</sup> Wynne Armand, *Have a Gas Stove? How to Reduce Pollution that May Harm Health*, HARVARD HEALTH PUBLISHING (Sept. 7, 2022), <https://www.health.harvard.edu/blog/have-a-gas-stove-how-to-reduce-pollution-that-may-harm-health-202209072811>.

<sup>112</sup> See, e.g., *supra* Section III.

<sup>113</sup> Although the combustion emissions of electric and induction stoves are much lower, cooking with electric/induction stoves will still create some pollutants. See *Gas stoves: A hidden health risk in plain sight*, U.S. PIRG (Jan. 26, 2022), <https://pirg.org/edfund/resources/gas-stoves-a-hidden-health-risk-in-plain-sight/> (“While cooking food on any type of stove emits fine particulate matter (PM<sub>2.5</sub>), gas stoves can emit nearly double the amount of particulate matter as electric stoves.”).

<sup>114</sup> Seals & Krasner, *supra* note 15, at 17.

<sup>115</sup> Dr. Yifang Zhu, et al., *Effects of Residential Gas Appliances on Indoor and Outdoor Air Quality and Public Health in California*, UCLA FIELDING SCH. OF PUB. HEALTH, 8 (April 2020) (commissioned by Sierra Club), <https://coeh.ph.ucla.edu/effects-residential-gas-appliances-indoor-and-outdoor-air-quality-and-public-health-california>.

are 50 to over 400 percent higher than homes with electric stoves.<sup>116</sup> Consequently, the health risks posed by poor indoor air quality are reduced in homes with electric or induction stoves.<sup>117</sup>

Moreover, there are many co-benefits associated with electrifying household appliances. Transitioning away from gas appliances can also improve outdoor air quality and overall public health. One study found that if all residential gas appliances in California were replaced with electric alternatives, the reduction in outdoor air pollution alone would significantly improve public health – with a total health savings of \$3.5 billion each year.<sup>118</sup> In addition, the built environment makes a significant contribution to air and climate pollution. Gas appliances, not just gas stoves, are responsible for tons of climate-harming greenhouse gas emissions annually.<sup>119</sup>

However, a complete transition to electric appliances is unlikely to occur within the near term. There are some potential barriers, such as cost, for replacing gas appliances with electric appliances, especially for lower-income households.<sup>120</sup> Since some consumers cannot make an immediate transition to electric appliances, it is critical the CPSC promptly develop health-protective standards and increase consumer awareness on the health risks posed by gas stoves and how to mitigate them.

Also, in considering its options, the CPSC should keep in mind that the Department of Energy (“DOE”) is simultaneously developing regulations to help reduce emissions from household appliances, including cooking products, through updating energy efficiency standards, which many of the undersigned States supported.<sup>121</sup> It is important for the CPSC to coordinate with other federal agencies, like the DOE, to ensure that any future rulemakings do not work at cross-purposes and will not result in contradictory regulations. This would, of course, hinder the great work being done to reduce harmful emissions and facilitate a transition to cleaner, healthier homes.

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<sup>116</sup> Seals & Krasner, *supra* note 15, at 11 (citing INTEGRATED SCIENCE ASSESSMENT FOR OXIDES OF NITROGEN – HEALTH CRITERIA, ENV’T PROT. AGENCY, EPA/600/R-08/071, at 2–38, (July 2008) <https://cfpub.epa.gov/ncea/isa/recordisplay.cfm?deid=194645>).

<sup>117</sup> Zhu, et al., *supra* note 115, at 8 (“Exposure to the pollutants from gas appliances can be detrimental to human health; one significant benefit of replacing natural gas . . . appliances with electric appliances would be the elimination of indoor air pollution that comes from burning gas indoors”).

<sup>118</sup> *Id.*

<sup>119</sup> Gas combustion in buildings produces at least 10 percent of the nation’s greenhouse gas pollution. Louis-Préscott & Golden, *supra* note 38. Scientists estimate that methane leaking from gas stoves in the U.S. is equal to the emission released by half a million gas powered vehicles every year. Lebel, et al., *supra* note 7, at 2529.

<sup>120</sup> See Miller, et al., *supra* note 96, at 17-21.

<sup>121</sup> See U.S. Dep’t of Energy proposed new and amended energy conservation standards for conventional consumer cooking products. 88 Fed. Reg. 6,818 (Feb. 1, 2023). See also Letter from Letitia James, New York Atty. Gen., et al, to U.S. Dep’t of Energy, Appliance & Equipment Standards Program (Apr. 17, 2023), available at <https://oag.ca.gov/system/files/attachments/press-docs/Multistate%20Comments%20in%20Support%20of%20Proposed%20Cooking%20Product%20Standards%202023%2004%2017%20FINAL%20.pdf>.

## V. Conclusion

The States applaud the CPSC's efforts to gather additional information about the health hazards posed by gas stoves and potential pathways for mitigating those hazards. We urge the CPSC to use the data it is developing to promptly initiate proceedings that will result in standards and requirements needed to protect the health and safety of U.S. consumers. In addition, raising awareness about the health hazards associated with gas stove use and the importance of using ventilation is essential so that consumers, including those in underserved communities where adverse impacts may be disproportionately greater, can make properly informed decisions regarding the health risks of purchasing a gas stove.

Sincerely,

FOR THE DISTRICT OF COLUMBIA

BRIAN L. SCHWALB  
Attorney General

*/s/Lauren Cullum*

LAUREN CULLUM  
Special Assistant Attorney General  
BRIAN CALDWELL  
Assistant Attorney General  
Office of the Attorney General for the  
District of Columbia  
400 6<sup>th</sup> St. NW  
Washington, DC 20001  
(202) 727-3400  
Email: [lauren.cullum@dc.gov](mailto:lauren.cullum@dc.gov)

FOR THE STATE OF NEW YORK

LETITIA JAMES  
Attorney General

*/s/ Lisa S. Kwong*

LISA S. KWONG  
Meredith Lee-Clark  
Assistant Attorneys General  
Office of the Attorney General  
Environmental Protection Bureau  
The Capitol  
Albany, NY 12224  
Tel: 518-776-2422  
Email: [Lisa.Kwong@ag.ny.gov](mailto:Lisa.Kwong@ag.ny.gov)

FOR THE STATE OF DELAWARE

KATHLEEN JENNINGS  
Attorney General

*s/ Vanessa Kassab*

VANESSA KASSAB  
Deputy Attorney General  
Office of Impact Litigation and Tobacco  
Enforcement  
Delaware Department of Justice  
(302) 683-8881  
Email: [vanessa.kassab@delaware.gov](mailto:vanessa.kassab@delaware.gov)

FOR THE STATE OF MARYLAND

ANTHONY G. BROWN  
Attorney General

*/s/ Steven J. Goldstein*

STEVEN J. GOLDSTEIN  
Special Assistant Attorney General  
Office of the Attorney General of Maryland  
200 Saint Paul Place  
Baltimore, Maryland 21202  
(410) 576-6414  
Email: [sgoldstein@oag.state.md.us](mailto:sgoldstein@oag.state.md.us)

FOR THE COMMONWEALTH OF  
MASSACHUSETTS

ANDREA JOY CAMPBELL  
Attorney General

/s/ I. Andrew Goldberg

I. ANDREW GOLDBERG  
Assistant Attorney General  
Environmental Protection Division  
DONALD BOECKE  
Assistant Attorney General  
Energy and Telecommunications Division  
Office of the Attorney General  
One Ashburton Place, 18th Floor  
Boston, MA 02108  
Tel: (617) 963-2429  
Email: [andy.goldberg@mass.gov](mailto:andy.goldberg@mass.gov)

FOR THE STATE OF MINNESOTA

KEITH ELLISON  
Attorney General

/s/ Joseph T. Heegaard

JOSEPH T. HEEGAARD  
Special Assistant Attorney General  
Minnesota Attorney General's Office  
445 Minnesota Street, Suite 1400  
St. Paul, MN 55101  
Telephone: (651) 583-6667  
Email: [joseph.heegaard@ag.state.mn.us](mailto:joseph.heegaard@ag.state.mn.us)

FOR THE CITY OF NEW YORK

HON. SYLVIA O. HINDS-RADIX  
Corporation Counsel

/s/ Hilary Meltzer

HILARY MELTZER  
Chief, Environmental Law Division  
New York City Law Department  
100 Church Street  
New York, NY 10007  
Tel: (212) 356-2070  
Email: [hmeltzer@law.nyc.gov](mailto:hmeltzer@law.nyc.gov)

FOR THE STATE OF OREGON

ELLEN F. ROSENBLUM  
Attorney General

/s/ Paul A. Garrahan

PAUL A. GARRAHAN  
Attorney-in-Charge  
STEVE NOVICK  
Special Assistant Attorney General  
Natural Resources Section  
Oregon Department of Justice  
1162 Court Street NE  
Salem, OR 97301  
(503) 947-4540  
Email: [Paul.Garrahan@doj.state.or.us](mailto:Paul.Garrahan@doj.state.or.us)  
[Steve.Novick@doj.state.or.us](mailto:Steve.Novick@doj.state.or.us)

FOR THE STATE OF RHODE ISLAND

PETER F. NERONHA  
Attorney General

*/s/ Alison B. Hoffman*  
ALISON B. HOFFMAN  
Special Assistant Attorney General  
Chief, Environment and Energy Unit  
Rhode Island Office of the Attorney General  
150 South Main Street  
Providence, RI 02903  
Phone: (401) 274-4400 ext. 2116  
Email: [ahoffman@riag.ri.gov](mailto:ahoffman@riag.ri.gov)

FOR THE STATE OF VERMONT

CHARITY R. CLARK  
Attorney General

*/s/ Nicholas F. Persampieri*  
NICHOLAS F. PERSAMPIERI  
Assistant Attorney General  
Office of the Attorney General  
109 State Street  
Montpelier, VT 05609  
(802) 828-3171  
Email: [nick.persampieri@vermont.gov](mailto:nick.persampieri@vermont.gov)

FOR THE STATE OF WASHINGTON

ROBERT W. FERGUSON  
Attorney General

*/s/ Jonathan Munro-Hernandez*  
JONATHAN MUNRO-HERNANDEZ  
MEGAN SALLOMI  
Assistant Attorney Generals  
Environmental Protection Division  
Washington Attorney General's Office  
800 5<sup>th</sup> Ave Ste. 2000 TB-14  
Seattle WA, 98104  
(206) 389-2432  
Email: [jonathan.munro-hernandez@atg.wa.gov](mailto:jonathan.munro-hernandez@atg.wa.gov)