



Institute for  
**Policy Integrity**  
NEW YORK UNIVERSITY SCHOOL OF LAW

May 8, 2023

**To:** Consumer Product Safety Commission  
**Re:** Request for Information on Chronic Hazards Associated With Gas Ranges and Proposed Solutions, 88 Fed. Reg. 14,150 (March 7, 2023)

The Institute for Policy Integrity at New York University School of Law (Policy Integrity)<sup>1</sup> respectfully submits the following comments to the Consumer Product Safety Commission (CPSC or the Commission) regarding the request for information on chronic hazards associated with gas ranges and proposed solutions (RFI).<sup>2</sup> Policy Integrity is a non-partisan think tank dedicated to improving the quality of government decision-making through advocacy and scholarship in the fields of administrative law, economics, and public policy.

As Policy Integrity explained in a recent report, the Commission is authorized to reduce unreasonable risks of injury from gas stoves by (1) issuing mandatory performance standards, (2) requiring warning labels, and (3) producing public education materials.<sup>3</sup> We commend the Commission for taking a critical step to gather the information necessary to determine how best to use these authorities, and we offer the following observations and recommendations:

- The Consumer Product Safety Act (CPSA) authorizes the CPSC to issue performance standards and require warning labels if “reasonably necessary to prevent or reduce an unreasonable risk of injury” posed by a consumer product.<sup>4</sup> Here, the CPSC could reasonably conclude that gas stove emissions create an “unreasonable risk” by causing indoor air pollutant concentrations that exceed relevant U.S. and international air quality standards and guidelines.
- The CPSC has previously taken discretionary action under the CPSA to regulate products that present chronic hazards akin to those posed by gas stove emissions. The CPSC also has the relevant expertise to weigh any associated hard-to-quantify effects.
- The CPSC should consider issuing a performance standard that reduces the risk of health harm from gas stove emissions by alerting users to unsafe indoor air pollutant concentrations, automatically shutting off the device when those levels are reached and/or

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<sup>1</sup> This document does not purport to represent the views, if any, of New York University School of Law.

<sup>2</sup> Request for Information on Chronic Hazards Associated With Gas Ranges and Proposed Solutions, 88 Fed. Reg. 14,150, 14,150 (Mar. 7, 2023) [hereinafter RFI].

<sup>3</sup> LAURA FIGUEROA & JACK LIENKE, INST. FOR POL’Y INTEGRITY, HOW THE CONSUMER PRODUCT SAFETY COMMISSION CAN ADDRESS THE RISKS OF INDOOR AIR POLLUTION FROM GAS STOVES, 9–11 (2022) (enclosed).

<sup>4</sup> 15 U.S.C. § 2056(a).

activating a connected range hood to increase ventilation. The Commission has previously required sensors on potentially dangerous products—such as oxygen depletion safety shut-off systems on space heaters. In designing a performance standard for gas stoves, the CPSC could draw on its many years of experience evaluating safety sensors for other gas appliances and contributing to the design of voluntary standards with similar requirements.

- The CPSC should consider issuing a mandatory performance standard for range hoods that ensures adequate ventilation of stove emissions. Performance standards for ducted range hoods, focused on capture efficiency and automatization, would be a valuable complement to any stove-focused standards. Residential ducted range hoods are subject to voluntary standards that regulate noise and air flow, but they do not account for a hood’s “capture efficiency,” or its ability to remove harmful pollutants such as NO<sub>2</sub> and PM<sub>2.5</sub> and expel them to the outside. CPSC should evaluate whether these voluntary standards are insufficient to reduce an unreasonable risk of injury.
- The CPSC should also consider requiring a warning label that alerts consumers to the pollutants emitted by gas stoves, their potential health consequences, and the importance of ventilation as a risk-reduction tool. Such a label could serve as a low-cost, quickly implementable precursor or supplement to a performance standard.
- The CPSC should consider creating accessible public education materials regarding the risks posed by gas stove emissions and strategies for mitigating them. Because consumer awareness of the health hazards posed by gas stoves is currently low, providing educational materials would help consumers make more informed and safer choices when using their gas stoves and/or shopping for new stoves.

**I. The Consumer Product Safety Act Authorizes the CPSC to Issue Performance Standards and Require Warning Labels That Are “Reasonably Necessary to Prevent or Reduce an Unreasonable Risk of Injury Associated” with Gas Stoves**

To issue a mandatory performance standard or require a warning label under the Consumer Product Safety Act (CPSA), the CPSC must find that each is “reasonably necessary to prevent or reduce an unreasonable risk of injury associated with such product.”<sup>5</sup> The Commission could reasonably conclude that gas stoves present an “unreasonable risk of injury” because they produce indoor concentrations of nitrogen dioxide (NO<sub>2</sub>) and particulate matter (PM<sub>2.5</sub>) that can exceed relevant thresholds for safety established by the U.S. Environmental Protection Agency (EPA) and World Health Organization (WHO).<sup>6</sup> Additionally, the CPSA directs the CPSC to rely on existing voluntary standards when they adequately address an unreasonable risk, but we are aware of no existing voluntary standards focused on addressing the risks of NO<sub>2</sub> and PM<sub>2.5</sub> pollution from gas stoves. Finally, although many CPSC rules focus on acute risks of injury, the Commission has also repeatedly taken discretionary action to address chronic hazards akin to gas stove emissions. Accordingly, the CPSC should issue mandatory performance standards and/or require warning labels for gas stoves to the extent it deems them “reasonably necessary” to keep

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<sup>5</sup> 15 U.S.C. § 2056(a).

<sup>6</sup> See Figueroa & Lienke, *supra* note 3, at 2–3 (discussing both the relevant safety standards and citing evidence that gas stove use can lead to levels exceeding those standards); see also *infra* Section I.A.

indoor pollutant concentration below relevant national and international air quality standards and guidelines.<sup>7</sup>

### A. Gas Stove Emissions Can Generate Unsafe Concentrations of Indoor Air Pollution

Both NO<sub>2</sub> and PM<sub>2.5</sub> pose serious health risks. EPA has, for example, found a causal relationship between short-term NO<sub>2</sub> exposure and asthma.<sup>8</sup> EPA has also concluded, based on available epidemiological and experimental evidence, that “[t]here is likely to be a causal relationship” between long-term NO<sub>2</sub> exposure and the *development* of asthma.<sup>9</sup> For PM<sub>2.5</sub>, EPA has found a causal link between both short- and long-term exposure and mortality and cardiovascular effects, as well as a likely causal relationship between both short- and long-term exposure and respiratory effects.<sup>10</sup>

Accordingly, regulators here and abroad have long worked to protect public health by limiting concentrations of these pollutants in the ambient air. For NO<sub>2</sub>, EPA National Ambient Air Quality Standards (NAAQS), which must be set at a level “requisite to protect public health” with “an adequate margin of safety,”<sup>11</sup> permit a maximum one-hour average of 100 parts per billion (ppb) and a maximum annual average of 53 ppb. Canada’s ambient standards, meanwhile, specify a one-hour daily maximum of 42 ppb and an annual average of 12 ppb for NO<sub>2</sub>.<sup>12</sup> And WHO’s air quality guidelines, which apply both indoors and out,<sup>13</sup> are even stricter,

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<sup>7</sup> While the “reasonably necessary” standard is not explicitly defined in the CPSA, legislative history suggests that Congress “intended the Commission and the courts to work a definition on a case-by-case basis.” See *Aqua Slide ‘N’ Dive Corp. v. Consumer Prod. Safety Com.*, 569 F.2d 831, 839 (5th Cir. 1978). On this case-by-case basis, courts have required the CPSC to weigh both the benefits and burdens of a regulation. See, e.g., *id.* (“[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.”).

<sup>8</sup> ENV’T PROTECTION AGENCY, INTEGRATED SCIENCE ASSESSMENT FOR OXIDES OF NITROGEN—HEALTH CRITERIA lxxxiii (2016) [hereinafter 2016 ASSESSMENT], <https://cfpub.epa.gov/ncea/isa/recordisplay.cfm?deid=310879>. (“This conclusion [determining a causal relationship] is strengthened from the 2008 ISA for Oxides of Nitrogen from likely to be a causal relationship (Table ES-1) based on the evidence indicating that NO<sub>2</sub> exposure can trigger asthma attacks.”).

<sup>9</sup> *Id.* at lxxxiv (“The conclusion [of likely causal relationship] is strengthened from the 2008 ISA (Table ES-1) because where previous epidemiologic findings were inconsistent, recent studies consistently observe NO<sub>2</sub>-related increases in asthma development in children who are followed over time and are supported by previous experimental studies.”).

<sup>10</sup> ENV’T PROTECTION AGENCY, INTEGRATED SCIENCE ASSESSMENT FOR PARTICULATE MATTER ES-12 to ES-17 (2019), <https://cfpub.epa.gov/ncea/isa/recordisplay.cfm?deid=347534>. These conclusions are consistent with the 2009 ISA conclusions. *Id.* The ISA notes that “a causal or likely to be causal determination, reflect[s] the highest degree to which the evidence reduces chance, confounding, and other biases in the exposure–health effect relationship.” *Id.* at ES-12.

<sup>11</sup> 42 U.S.C. §7409(b)(1).

<sup>12</sup> Canada’s Air, Canadian Council of Ministers of the Env’t, <https://ccme.ca/en/air-quality-report> (last visited May 7, 2023).

<sup>13</sup> WHO GLOBAL AIR QUALITY GUIDELINES: PARTICULATE MATTER (PM<sub>2.5</sub> AND PM<sub>10</sub>), OZONE, NITROGEN DIOXIDE, SULFUR DIOXIDE AND CARBON MONOXIDE xx (2021), <https://apps.who.int/iris/handle/10665/345329> [hereinafter WHO GLOBAL AIR QUALITY GUIDELINES] (“The present guidelines are applicable to both outdoor and indoor environments globally.”).

recommending an annual NO<sub>2</sub> exposure limit of 5.3 ppb and a 24-hour limit of 13.3 ppb.<sup>14</sup> Peak NO<sub>2</sub> concentrations in homes with gas stoves have been found to exceed EPA’s one-hour limit, and average concentrations in such homes are, by some estimates, almost five times higher than WHO’s 24-hour guideline.<sup>15</sup>

PM<sub>2.5</sub> concentrations in homes with gas stoves can also exceed EPA standards and WHO guidelines. Existing 24-hour standards and guidelines for PM<sub>2.5</sub> from EPA and WHO establish limits of 35 µg/m<sup>3</sup> and 15 µg/m<sup>3</sup>, respectively.<sup>16</sup> While PM<sub>2.5</sub> emissions from gas stoves depends on a variety of factors such as type of cooking (i.e., frying vs. simmering), temperature, food surface area to mass ratio, and tidiness of cooking appliance, studies have found that emission rates can climb as high as 3880 µg/m<sup>3</sup> during oven cleaning.<sup>17</sup> The open flame design of gas stoves also means that they produce PM<sub>2.5</sub> even when there is no food on the stove.<sup>18</sup> One study that modeled PM<sub>2.5</sub> emissions in new dwellings compliant with California’s building code and efficiency standards predicted a PM<sub>2.5</sub> 24-hour exposure level of 37 µg/m<sup>3</sup> when no range hood is used—exceeding both EPA and WHO standards.<sup>19</sup> Smaller homes with less capacity for air circulation and ventilation or those with poor natural ventilation would likely present even higher levels.

#### B. *There Are Currently No Voluntary Standards Aimed at Gas Stove Emissions*

The CPSC directs the CPSC to “rely” on existing voluntary standards—i.e., refrain from issuing mandatory standards—“whenever compliance with such voluntary standards would eliminate or adequately reduce the risk of injury addressed and it is likely that there will be substantial compliance with such voluntary standards.”<sup>20</sup> However, there is currently no voluntary standard aimed at reducing indoor exposure to NO<sub>2</sub> and PM<sub>2.5</sub> emissions from gas stoves. Accordingly, the CPSC may issue mandatory performance standards and warning label requirements for gas stoves so long as it finds them reasonably necessary to avoid indoor air pollutant concentrations that exceed relevant safety standards and guidelines.

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<sup>14</sup> *Id.* at 115, 124. The WHO targets are expressed in units of µg/m<sup>3</sup> and have been converted to ppb using the formula 1 ppb of NO<sub>2</sub> = 1.88 µg/m<sup>3</sup>.

<sup>15</sup> See Figueroa & Lienke, *supra* note 3, at 2 (comparing WHO standards to global studies conducted over past two decades). Global studies conducted over the past two decades have found that gas stove emissions result in average indoor NO<sub>2</sub> concentrations of up to 65 parts per billion (ppb) over a 24-hour period, with peak concentrations reaching 189 ppb. 2016 Assessment, *supra* note 8, at 3-37 to -38 tbl.3-4.

<sup>16</sup> NATIONAL AMBIENT AIR QUALITY STANDARDS (NAAQS) FOR PM, ENV’T PROTECTION AGENCY, <https://www.epa.gov/pm-pollution/national-ambient-air-quality-standards-naaqs-pm> (last visited Mar. 15, 2021); WHO GLOBAL AIR QUALITY GUIDELINES, *supra* note 13, at 88.

<sup>17</sup> Tianchao Hu et al., COMPILATION OF PUBLISHED PM<sub>2.5</sub> EMISSION RATES FOR COOKING, CANDLES AND INCENSE FOR USE IN MODELING OF EXPOSURES IN RESIDENCES, LAWRENCE BERKELEY NATIONAL LABORATORY 11–13 (2012), <https://doi.org/10.2172/1172959>; Roy Fortmann, INDOOR AIR QUALITY: RESIDENTIAL COOKING EXPOSURES, CAL. AIR RES. BD. 130–32 (2001), [https://ww3.arb.ca.gov/research/single-project.php?row\\_id=60171](https://ww3.arb.ca.gov/research/single-project.php?row_id=60171).

<sup>18</sup> Hu, *supra* note 17, at 11 (observing that “indoor combustion, i.e. gas stove flames, is an important source[ ] of particulate matter in the absence of cooking emissions”).

<sup>19</sup> WANYU CHAN ET AL., LAWRENCE BERKELEY NAT’L LAB’Y, SIMULATIONS OF SHORT-TERM EXPOSURE TO NO<sub>2</sub> AND PM<sub>2.5</sub> TO INFORM CAPTURE EFFICIENCY STANDARDS 18 (2020), <https://escholarship.org/content/qt6tj6k06j/qt6tj6k06j.pdf>.

<sup>20</sup> 15 U.S.C. § 2056(b)(1).

*C. The CPSC Has Previously Used Its CPSA Authority to Regulate Products That, Like Gas Stoves, Present Chronic Hazards, and the CPSC Has the Relevant Expertise to Weigh Associated Hard-to-Quantify Benefits*

While many CPSC rules focus on acute risks of injury, such as strangulation from operating cords for window coverings<sup>21</sup> or lacerations from the blades of walk-behind power lawn mowers,<sup>22</sup> the CPSC's regulatory authority under the CPSA is not limited to such harms. On the contrary, the Commission has repeatedly issued CPSA rules aimed at chronic hazards, like those associated with gas stoves. The CPSA also authorizes the CPSC to study chronic hazards through the creation of Chronic Hazard Advisory Panels (CHAPs).<sup>23</sup>

For example, the CPSC addressed chronic health hazards in a 1977 CPSA rule that banned artificial emberizing materials.<sup>24</sup> The Commission found that the products, which contained asbestos, “present an unreasonable risk of injury due to inhalation of fibers which increase the risk of developing cancers such as lung cancer and mesothelioma.”<sup>25</sup> Also in 1977, the Commission issued rules designed to reduce the “unreasonable risk of lead poisoning of young children”—expressly recognizing that “[l]ead paint poisonings result from a chronic hazard rather than from an acute hazard.”<sup>26</sup>

In 1981, the CPSC used the CPSA to regulate urea-formaldehyde foam insulation (UFFI),<sup>27</sup> a type of asbestos-containing insulation that slowly releases formaldehyde gas, impairing indoor air quality and creating a risk of cancer through chronic exposure.<sup>28</sup> CPSC banned UFFI in schools and homes,<sup>29</sup> though the ban was overturned on grounds unrelated to CPSC's statutory authority to regulate UFFI or chronic hazards generally.<sup>30</sup>

The CPSC has also regulated toys containing phthalates under the joint authority of the CPSA and the Consumer Product Safety Improvement Act (CPSIA).<sup>31</sup> In connection with that effort, the CPSC convened a CHAP to examine the long-term effects of phthalates and phthalate alternatives on children's health.<sup>32</sup> The CHAP engaged in a cumulative risk assessment and examined the most recent data from human and animal studies, and recommended banning

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<sup>21</sup> Safety Standard for Operating Cords on Custom Window Coverings, 87 Fed. Reg. 73,144 (Nov. 28, 2022) (to be codified at 16 C.F.R. §§ 1112 & 1260).

<sup>22</sup> Safety Standard for Walk-Behind Power Lawn Mowers, 44 Fed. Reg. 10024 (Feb. 15, 1979) (codified at 16 C.F.R. § 1205).

<sup>23</sup> 15 U.S.C. § 2077.

<sup>24</sup> Ban of Artificial Emberizing Materials (Ash and Embers) Containing Respirable Free-Form Asbestos, 42 Fed. Reg. 63,354 (Dec. 15, 1977) (codified at 16 C.F.R. § 1305).

<sup>25</sup> 16 C.F.R. § 1305.2.

<sup>26</sup> See Lead Containing Paint and Certain Consumer Products Bearing Lead-Containing Paint, 42 Fed. Reg. 44,193, 44,200–201 (Sept. 1, 1977) (previously codified at 16 C.F.R. § 1303.1-1303.5).

<sup>27</sup> Urea-Formaldehyde Foam Insulation, 46 Fed. Reg. 11,188 (Feb. 5, 1981).

<sup>28</sup> *Id.* at 11,192.

<sup>29</sup> *Id.* at 11,190.

<sup>30</sup> See *Gulf S. Insulation v. U.S. Consumer Prod. Safety Comm'n*, 701 F.2d 1137 (5th Cir. 1983).

<sup>31</sup> 16 C.F.R. § 1307.

<sup>32</sup> 15 U.S.C. § 2057c(b)(2).

several phthalates “at levels greater than 0.1 percent in children’s toys and child care articles” due to “their adverse effect on male reproductive development.”<sup>33</sup>

As a result of these and other proceedings, the CPSC has developed expertise in evaluating the costs and benefits of regulations aimed at chronic hazards. To issue a consumer product safety standard, such as a performance requirement or warning label requirement, CPSC must find that “the benefits expected from the rule bear a reasonable relationship to its costs”<sup>34</sup> and that “the rule imposes the least burdensome requirement which prevents or adequately reduces the risk of injury for which the rule is being promulgated.”<sup>35</sup> While it is often very difficult or impossible to fully quantify the benefits of reduced exposure to a chronic hazard, the CPSC expressly requires the CPSC to account for such unquantified effects in concluding whether benefits bear a reasonable relationship to costs.<sup>36</sup> Where the benefits of a standard are difficult or impossible to fully quantify, the CPSC can employ breakeven analysis to aid its evaluation.<sup>37</sup> In performing a breakeven or other analysis of effects that are not fully monetized, the CPSC should take care to consider the most recent available data on the risks posed by gas stoves.<sup>38</sup>

## **II. The CPSC Should Consider Issuing a Performance Standard That Requires Gas Stoves to Feature Sensors That Alert Users to Unsafe Pollution Concentrations and/or Activate a Connected Range Hood.**

As a potential regulatory response to NO<sub>2</sub> and PM<sub>2.5</sub> emissions from gas stoves, the CPSC should consider the viability of a performance standard that requires gas stoves to include air quality sensors that alert users to unsafe pollutant concentrations in the stoves’ vicinity and/or automatically activate connected range hoods.<sup>39</sup> The CPSC already requires or has proposed to require similar safety mechanisms for other products, including other gas appliances.

For example, the CPSC issued a mandatory standard requiring the integration of oxygen depletion safety shut-off systems into unvented space heaters to “inhibit the buildup of life-threatening levels of carbon monoxide” once the local oxygen level was reduced to 18% from

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<sup>33</sup> Prohibition of Children’s Toys and Child Care Articles Containing Specified Phthalates, 82 Fed. Reg. 49,938, 49,948 (Oct. 27, 2017) (codified at 16 C.F.R. § 1307).

<sup>34</sup> 15 U.S.C. § 2058(f)(3)(E).

<sup>35</sup> 15 U.S.C. § 2058(f)(3)(F).

<sup>36</sup> *Id.*

<sup>37</sup> Breakeven analysis is a well-accepted approach to regulatory analysis that is appropriately used instead of traditional cost-benefit analysis when important costs or benefits cannot be monetized. *See, e.g.*, Off. Mgmt. & Budget, *Circular A-4 2* (2003), <https://perma.cc/E7VU-SXE8>. For example, if the CPSC can monetize the value of a particular health impact—such as an avoided asthma attack—it can estimate how many cases would need to be avoided for the benefits of the standard to justify the cost.

<sup>38</sup> *See, e.g.*, *Zen Magnets LLC v. Consumer Prod. Safety Com.*, 841 F.3d 1141 (2016) (finding that the Commission inappropriately relied on an older data set that did not reflect “significant market changes” and an accompanying decline in injuries associated with the regulated magnet sets).

<sup>39</sup> *See* Figueroa & Lienke, *supra* note 3, at Section II.A.3.



20.9%.<sup>40</sup> In justifying this standard, the Commission noted that European unvented gas space heaters were already equipped with similar sensing and shut-off devices.<sup>41</sup>

The CPSC is also in the process of requiring carbon monoxide sensors and automatic shutoff devices for other gas appliances, including furnaces and boilers, under the CPSA.<sup>42</sup> Drawing on decades of research and existing safety standards in Europe and Japan, the CPSC issued an advance notice of proposed rulemaking for furnaces and boilers in 2019.<sup>43</sup> The Commission has likewise proposed standards requiring automatic shutoff/response mechanisms for portable generators, after fining inadequate compliance with voluntary standards.<sup>44</sup>

### **III. The CPSC Should Consider a Performance Standard for Range Hoods that Ensures Adequate Ventilation of Stove Emissions**

Performance standards for ducted range hoods, focused on capture efficiency and automatization, would be a valuable complement to any stove-focused standards. Even as early as 1995, the EPA and CPSC identified a range hood as a way to reduce indoor air pollution from gas stoves.<sup>45</sup> The CPSC should consider issuing a mandatory performance standard for range hoods alongside the requirements for stoves. The CPSC should additionally consider requiring range hoods to be sold with gas stoves as part of the gas stove performance requirements so that

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<sup>40</sup> CPSC, *Commission Approves Mandatory Standard to Improve Safety of Unvented Gas Space Heaters* (Sep. 8, 1980), <https://www.cpsc.gov/Newsroom/News-Releases/1980/Commission-Approves-Mandatory-Standard-To-Improve-Safety-Of-Unvented-Gas-Space-Heaters?language=es> [hereinafter CPSC Press Release for Space Heaters]. Four years later, the CPSC revoked the safety standard based on a finding that the standard was no longer reasonably necessary given a high level of compliance with the voluntary standard by the industry, but not due to a lack of authority to promulgate such a standard. *See* Revocation of Safety Standard Requiring Oxygen Depletion Safety Shutoff Systems (ODS) for Unvented Gas-Fired Space Heaters, 49 Fed. Reg. 46,108, 46,115 (1984).

<sup>41</sup> CPSC Press Release for Space Heaters, *supra* note 40.

<sup>42</sup> Performance Requirements for Residential Gas Furnaces and Boilers, 84 Fed. Reg. 42,848, 42,848 (Aug. 19, 2019) (to be codified at 16 C.F.R. chapter undefined) (“Starting in 2000, CPSC staff sought to address CO hazards at the source of production (*i.e.*, in the heat exchanger and flue passageways) in these appliances by working with voluntary standards organizations proposing that they add “CO shutoff/response” provisions to the voluntary standards.”); *id.* at 42,851 (“In 2015, CPSC staff proposed requirements for CO shutoff/response to the respective voluntary standards development organizations for gas-fired central furnaces, boilers, wall furnaces, and floor furnaces... The 2015 staff proposal was supported by the proof-of-concept testing previously conducted by CPSC staff in 2001, 2004, and 2007, and by current standards for gas appliances in Europe and Japan, which include similar requirements to use combustion sensors to regulate CO production and shut down the appliance or modulate its performance if CO production exceeds a specified safe level.”).

<sup>43</sup> Performance Requirements for Residential Gas Furnaces and Boilers, 84 Fed. Reg. 42,848, 42,848 (Aug. 19, 2019) (to be codified at 16 C.F.R. chapter undefined) (“The Commission is considering developing a *mandatory standard* to reduce the risk of death and injury associated with CO production and leakage from residential gas furnaces and boilers.”) (emphasis added).

<sup>44</sup> CPSC, *Briefing Package on Assessment of Portable Generator Voluntary Standards’ Effectiveness in Addressing CO Hazard, and Information on Availability of Compliant Portable Generators* (Feb. 2022), [https://www.cpsc.gov/s3fs-public/Briefing-Package-on-Portable-Generator-Voluntary-Standards.pdf?VersionId=hLnAkKQ6bCD\\_SKin8RE6Iax.BjZsB5x3](https://www.cpsc.gov/s3fs-public/Briefing-Package-on-Portable-Generator-Voluntary-Standards.pdf?VersionId=hLnAkKQ6bCD_SKin8RE6Iax.BjZsB5x3).

<sup>45</sup> ENV’T PROTECTION AGENCY & CONSUMER PRODUCTS SAFETY COMM’N, *THE INSIDE STORY: A GUIDE TO INDOOR AIR QUALITY* 16 (1995).

range hoods could be linked to pollution sensors enabling the range hood to be automatically turned on when pollution levels become unsafe.<sup>46</sup>

Residential ducted range hoods are subject to voluntary standards that regulate noise and airflow.<sup>47</sup> However, air flow measurement alone does not account for a hood's "capture efficiency," or its ability to remove harmful pollutants such as NO<sub>2</sub> and PM<sub>2.5</sub> and expel them to the outside.<sup>48</sup> In fact, researchers at Lawrence Berkeley National Laboratory (LBNL) found that, under testing conditions, hoods operating at the minimum air flow requirement have capture efficiencies below 25% when front burners are used.<sup>49</sup> Often, hoods actually installed in homes do not meet rated or advertised flow rates, meaning that capture efficiency for installed hoods may be even lower.<sup>50</sup> Accordingly, CPSC could reasonably find that the current voluntary standards are insufficient to adequately eliminate or reduce the risk of injury from gas stove pollution and the CPSC need not rely on them.

In compiling the best available information on the costs and benefits of improved ventilation, the CPSC may find it useful to review data collected by California. LBNL prepared a 2021 report for the California Energy Commission on the technical basis for updating kitchen ventilation requirements to protect health in new California homes and it includes a summary of studies pertinent to measuring benefits to ratepayers of increased ventilation.<sup>51</sup>

#### **IV. The CPSC Should Consider Requiring Warning Labels for Gas Stoves**

The CPSC should also consider requiring a warning label that (1) indicates that gas stoves emit NO<sub>2</sub> and PM<sub>2.5</sub>; (2) explains the health risks from each of these pollutants at concentrations common to gas stoves; and (3) highlights the importance of adequate ventilation. Such a warning label could be an important supplement to a performance standard requiring a sensor and/or improved range-hood performance, because it would alert consumers to the utility of the sensor and the importance of using the range hood when cooking. The CPSA expressly state that a

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<sup>46</sup> We recognize that such a standard may complicate purchases for consumers that already live in homes with an adequate range hood installed or where installation of a ducted range hood may be impractical or impossible. CPSC could consider creating limited exemptions to a requirement that gas stoves and range hoods be sold together.

<sup>47</sup> See *ARB Research Seminar: Kitchen Ventilation Solutions to Indoor Air Pollution Hazards from Cooking*, CAL. AIR RES. BD., <https://ww2.arb.ca.gov/resources/documents/indoor-air-pollution-cooking> (last visited May 7, 2023) [hereinafter ARB RESEARCH SEMINAR]. Residential ducted range hoods are covered under ANSI/ASHRAE Standard 62.2. See *Standards* 62.1 & 62.2, ASHRAE, <https://www.ashrae.org/technicalresources/bookstore/standards-62-1-62-2> (last visited Mar. 10, 2022).

<sup>48</sup> Yang-Seon Kim et al., *Development of A Standard Capture Efficiency Test Method for Residential Kitchen Ventilation*, 24 SCI. & TECH. BUILT ENV'T 176, 176 (2018), [https://www.tandfonline.com/doi/full/10.1080/23744731.2017.1416171?casa\\_token=Ro3Q242uMkMAAAA%3AqAU1UIWCWLnX6BkAdNLwJt-H8czuUKVORc8KOMcVtz6vci9GBFLNNUWr57-wM7xYqggA3Uu1Jxk](https://www.tandfonline.com/doi/full/10.1080/23744731.2017.1416171?casa_token=Ro3Q242uMkMAAAA%3AqAU1UIWCWLnX6BkAdNLwJt-H8czuUKVORc8KOMcVtz6vci9GBFLNNUWr57-wM7xYqggA3Uu1Jxk).

<sup>49</sup> ARB RESEARCH SEMINAR, *supra* note 47.

<sup>50</sup> *Id.*

<sup>51</sup> See BRETT C. SINGER ET AL., EFFECTIVE KITCHEN VENTILATION FOR HEALTHY ZERO NET ENERGY HOMES WITH NATURAL GAS, LAWRENCE BERKELEY NATIONAL LABORATORY 69 (2021), <https://www.energy.ca.gov/publications/2021/effective-kitchen-ventilation-healthy-zero-net-energy-homes-natural-gas>.



consumer product safety standard can include *both* performance and labeling requirements,<sup>52</sup> and the CPSC has developed such two-part standards in the past.<sup>53</sup>

A warning label could also be an important precursor to an eventual performance standard, given that the latter may take more time to both develop and implement. As the CPSC has noted in prior rulemakings, the costs of labeling requirements to manufacturers and consumers are typically quite low relative to the price of the affected product.<sup>54</sup> They can also be complied with in a matter of months.<sup>55</sup>

The CPSC has issued several mandatory warning labels regulating indoor appliances similar to gas stoves<sup>56</sup> that could inform effective labeling for gas stoves. For example, the CPSC mandated revisions to voluntary warning labels on portable generators after concluding that some consumers harmed by such products “were not aware of the CO hazard” or had a “misunderstanding of CO.”<sup>57</sup> Similarly, many consumers cook with gas stoves every day but are unaware of the related hazards or ways to mitigate them.

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<sup>52</sup> 15 U.S.C. § 2056(a) (“The Commission may promulgate consumer product safety standards in accordance with the provisions of section 2058 of this title. A consumer product safety standard shall consist of one or more of any of the following types of requirements: (1) Requirements expressed in terms of performance requirements. (2) Requirements that a consumer product be marked with or accompanied by clear and adequate warnings or instructions, or requirements respecting the form of warnings or instructions.”).

<sup>53</sup> For example, a 1980 rule requiring oxygen depletion safety shut-off systems for unvented space heaters required a permanent label “concerning safe operation, maintenance instructions, and information about symptoms of carbon monoxide poisoning.” Revocation of Safety Standard Requiring Oxygen Depletion Safety Shutoff Systems (ODS) for Unvented Gas-Fired Space Heaters, 49 Fed. Reg. 46,108, 46,108 (Nov. 23, 1984) (codified at 16 C.F.R. § 1212 (1980)). Another example, a CPSC rule to reduce tip-over hazards for clothing storage units (CSUs) combined requirements to increase stability with labeling requirements, explaining that warning labels would be insufficient without the performance standards. Safety Standard for Clothing Storage Units, 87 Fed. Reg. 72,598, 72,624 (Nov. 25, 2022) (to be codified 16 C.F.R. §§ 1112, 1261) (“Warning labels, on their own, are a less effective way to address the tip-over hazard, in part because warning labels rely on consumers seeing, understanding, and following the warnings. For this reason, the final rule includes requirements to provide for inherent stability of CSUs.”).

<sup>54</sup> See, e.g., Portable Generators, 72 Fed. Reg. 1443, 1444 (Jan. 12, 2007) (codified at 16 C.F.R. § 1407 (2007)) (“The costs of a warning label include the one-time cost of designing the label and the continuing costs of printing and applying the labels to the generators and packages. These costs are expected to be low—less than one dollar per generator.”); see also Provision of Performance and Technical Data for Coal and Wood Burning Appliances, 48 Fed. Reg. 21,898, 21,912 (May 16, 1983) (codified at 16 C.F.R. § 1406 et seq.) (estimating that the labeling costs that might be passed on to consumers would be unlikely to exceed “\$2.80 per stove”).

<sup>55</sup> See, e.g., Portable Generators, 72 Fed. Reg. 1443, 1446 (Jan. 12, 2007) (codified at 16 C.F.R. § 1407 (2007)) (“[T]he time and resources required by manufacturers to redesign their portable generator labels are likely to be low since the content and format of the labeling will be specified in the rule. The Commission, therefore, believes that most manufacturers should be able to comply with the requirements within 90 days of the publication of the final rule. Nevertheless, some manufacturers may have to reschedule other work and shift resources such as labor from other projects. There would be some costs associated with these adjustments and these costs could be alleviated somewhat by delaying the effective date of the rule. To provide some relief to manufacturers that might have trouble incorporating the label change within 90 days, the Commission has decided to post-pone the effective date of the rule such that the label would be required on any portable generator manufactured or imported 120 days after the publication of the final rule in the Federal Register.”).

<sup>56</sup> In addition to the warning labels discussed, in 1983 the CPSC issued a mandatory rule requiring coal and wood burning stoves and freestanding fireplaces—similar indoor appliances to gas stoves— to include warning labels to reduce the risk of fire. See Provision of Performance and Technical Data for Coal and Wood Burning Appliances, 48 Fed. Reg. 21,898 (May 16, 1983) (codified at 16 C.F.R. § 1406 et seq.).

<sup>57</sup> Memorandum from Janet L. Buyer, Project Manager, U.S. CPSC, Heather Sakellariou, Secretary for STP 2201, Underwriters Laboratories, Inc., on Request for Comments on the Proposed First Edition of the Standard for

## V. The CPSC Should Consider Creating Accessible Public Education Materials Regarding the Dangers of Gas Stoves

Finally, in addition to issuing mandatory performance standards and requiring warning labels, the CPSC should consider making use of its authority to produce public education materials.<sup>58</sup> For example, the Commission’s website already contains posters on carbon monoxide poisoning and fire safety in the kitchen; it could supplement these materials to educate the public about the hazards posed by gas stoves, especially for families with children.<sup>59</sup> Informed consumers will be better able to make purchasing and ventilation choices for themselves and their families, such as purchasing electric or induction stoves instead of gas stoves, deciding to install and use a ducted range hood, or otherwise increasing ventilation.<sup>60</sup>

Rather than evaluating each of the above recommendations individually, the CPSC should consider a holistic approach that combines different measures as needed to comprehensively protect consumers from unreasonable risk. For example, the Commission could issue gas stove performance standards requiring pollution sensors that alert consumers to high pollutant concentrations, range hood performance standards that ensure consumers have access to adequate ventilation when alerted to such concentrations, requirements for warning labels that inform consumers of the need for adequate ventilation, and educational materials to further explain the health risks posed by gas stove emissions in the absence of adequate ventilation.

Sincerely,

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Enclosure: Laura Figueroa & Jack Lienke, INST. FOR POL’Y INTEGRITY, THE EMISSIONS IN THE KITCHEN: HOW THE CONSUMER PRODUCT SAFETY COMMISSION CAN ADDRESS THE RISKS OF INDOOR AIR POLLUTION FROM GAS STOVES (2022).

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Portable Engine-Generator Assemblies, UL 2201, and Ballot for ANSI Recognition, at 2 (May 8, 2003) (citing Memorandum from Smith, T.P., on Human Factors Assessment for the Small Engine-Driven Tools Project to Janet L. Buyer, Project Manager, U.S. CPSC (June 18, 2002)).

<sup>58</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>59</sup> See, e.g., Serve Up Fire Safety in the Kitchen, CPSC, <https://www.cpsc.gov/Safety-Education/Safety-Guides/Fire/Serve-up-Fire-Safety-inthe-Kitchen> (last visited May 7, 2023); Safety Education Materials, CPSC, <https://www.cpsc.gov/Safety-Education/Safety-Education-Materials> (last visited May 7, 2023).

<sup>60</sup> See Figueroa & Lienke, *supra* note 3, at 15.