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Requesting Air Quality Workshop

Comment submitted by: Mothers Out Front, Physicians for Social Responsibility, Rocky Mountain Institute, and Sierra Club California

Additional submitted attachment is included below.



June 3, 2020

Commissioner J. Andrew McAllister, Ph.D.
Chair David Hochschild
California Energy Commission
1516 Ninth Street, MS-4
Sacramento, CA 95814-5512

**Re: Workshop Needed on Indoor Air Quality in Docket No. 2019-BSTD-03
(2022 Energy Code Pre-Rulemaking)**

Dear Commissioner McAllister and Chair Hochschild:

We write to urge the California Energy Commission (“CEC”) to **convene a Workshop on Indoor Air Quality** to ensure that the 2022 Title 24 Standards will support safe and healthy buildings for all Californians.

By statute, the CEC must consider indoor air pollution in setting its new building energy standards.¹ An increasing amount of scientific research is raising concerns that the indoor air quality guidelines that the CEC uses to set ventilation standards are outdated and fail to protect the health of Californians.

Mounting Evidence of Harm Due to Indoor Air Pollution from Gas Stoves

A recent report from Rocky Mountain Institute, Physicians for Social Responsibility, Mothers Out Front, and the Sierra Club synthesized decades of evidence on the health impacts of gas stoves and found that gas stoves release toxic pollutants at levels that can damage human health.²

Unvented gas combustion in homes can release more nitrogen oxides (“NO_x”) and carbon monoxide indoors than the U.S. Environmental Protection Agency allows outdoors.³ Meanwhile, we spend the vast majority—nearly 90%—of our time

¹ CAL. PUB. RES. CODE § 25402.8 (“When assessing new building standards for residential and nonresidential buildings relating to the conservation of energy, the commission shall include in its deliberations the impact that those standards would have on indoor air pollution problems.”).

² BRADY ANNE SEALS & ANDEE KRASNER, HEALTH EFFECTS FROM GAS STOVE POLLUTION (2020), <https://rmi.org/insight/gas-stoves-pollution-health>.

³ Jennifer M Logue et al., *Pollutant Exposures from Natural Gas Cooking Burners: A Simulation-Based Assessment for Southern California*, 122 ENVIRONMENTAL HEALTH PERSPECTIVES 43 (2014), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3888569/>.



indoors.⁴ According to a study by the Lawrence Berkeley National Laboratory, 12 million Californians in homes with gas stoves are breathing levels of NO_x that would be illegal outdoors, while 1.7 million Californians are breathing levels of carbon monoxide that exceed outdoor limits.⁵ Recent research from the University of California, Los Angeles reinforced these troubling findings.⁶

Children are particularly susceptible to harms due to pollution from unvented or poorly vented gas stoves. Living in a home with a gas stove increases the risk of asthma in children, relative to those children who live in homes with electric stoves. A gas stove in the home increases the risk of experiencing asthma symptoms by 42%.⁷ Meanwhile, having a gas stove increases the risk of being diagnosed with asthma by a doctor by 24%.⁸

One in eight Californians—5 million people—have asthma.⁹ Asthma rates are even higher in low-income communities and communities of color; consequently, these communities may be at higher risk of harms resulting from exposure to pollution from gas stoves, as some of the most susceptible populations are those with existing asthma.¹⁰ Additionally, lower income homes may be at a higher risk of exposure to gas stove pollution in the first place, as factors that contribute to higher levels of

⁴ Neil K. Klepis et al., *The National Human Activity Pattern Survey (NHAPS): A Resource for Assessing Exposure to Environmental Pollutants*, 11 JOURNAL OF EXPOSURE ANALYSIS AND ENVIRONMENTAL EPIDEMIOLOGY 231 (2001), <https://www.ncbi.nlm.nih.gov/pubmed/11477521>.

⁵ Jennifer M Logue et al., *Pollutant Exposures from Natural Gas Cooking Burners: A Simulation-Based Assessment for Southern California*, 122 ENVIRONMENTAL HEALTH PERSPECTIVES 49 (2014), available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3888569/>.

⁶ UCLA FIELDING SCHOOL OF PUBLIC HEALTH, EFFECTS OF RESIDENTIAL GAS APPLIANCES ON INDOOR AND OUTDOOR AIR QUALITY AND PUBLIC HEALTH IN CALIFORNIA (2020), <https://coeh.ph.ucla.edu/effects-residential-gas-appliances-indoor-and-outdoor-air-quality-and-public-health-california>.

⁷ Weiwei Lin et al., *Meta-Analysis of the Effects of Indoor Nitrogen Dioxide and Gas Cooking on Asthma and Wheeze in Children*, 42 INTERNATIONAL JOURNAL OF EPIDEMIOLOGY 1724 (2013), available at <https://doi.org/10.1093/ije/dyt150>.

⁸ See *id.*

⁹ CALIFORNIA DEP'T OF PUBLIC HEALTH, ASTHMA'S IMPACT ON CALIFORNIA: RECENT DATA FROM THE CALIFORNIA BREATHING ASTHMA PROGRAM (2013), <https://www.cdph.ca.gov/Programs/CCDCPP/DEODC/EHIB/CPE/CDPH%20Document%20Library/AsthmaImpactFactSheet.pdf>.

¹⁰ See, e.g., Michael Guarneri & John R. Balmes, *Outdoor Air Pollution and Asthma*, 383 LANCET 1581 (2014), available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4465283>; Christina M. Pacheco et al., *Homes of Low-Income Minority Families with Asthmatic Children Have Increased Condition Issues*, 35 ALLERGY AND ASTHMA PROCEEDINGS 467 (2014), available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4210655/#!po=78.0000>; Cheryl Katz, *People in Poor Neighborhoods Breathe More Hazardous Particles*, SCIENTIFIC AMERICAN (Nov. 2012), <https://www.scientificamerican.com/article/people-poor-neighborhoods-breathe-more-hazardous-particles>; Hatice S. Zahran et al., *Vital Signs: Asthma in Children – United States, 2001 – 2016*, Centers for Disease Control and Prevention Morbidity and Mortality Weekly Report (Feb. 9, 2018), <http://dx.doi.org/10.15585/mmwr.mm6705e1>; Centers for Disease Control and Prevention, Summary Health Statistics: National Health Interview Survey: 2015 at tbl. C-1 (2017), <http://www.cdc.gov/nchs/nhis/shs/tables.htm>.



NO_x in homes are more common in low-income multifamily housing. These factors include: smaller unit size, more people per home, and inadequate ventilation.¹¹

Properly designed ventilation, when used, can reduce exposure to pollution from gas stoves. However, survey results have shown that fewer than half of Californians use their range hoods when cooking.¹² Key reasons for not using range hoods while cooking include: noisy ventilation units, and a lack of knowledge about the importance of using ventilation at all times when combustion stoves are on.¹³ NO_x and carbon monoxide are odorless and colorless,¹⁴ and so can be emitted at levels that cause respiratory harm without visible evidence of pollution.

CEC Guidelines Are Outdated and Less Protective than WHO Guidelines

The indoor air quality guidelines that the CEC relies upon are outdated, and there is reason to believe that they may not sufficiently protect the public, especially vulnerable communities.

The California Air Resources Board (“CARB”) recently began a process¹⁵ to revise indoor air quality guidelines for NO_x emissions that date back to 1994.¹⁶ Meanwhile, the CEC’s ventilation standards working group¹⁷ is proposing to apply the U.S. Environmental Protection Agency’s (“EPA”) 2010 outdoor NO_x standards for use indoors.¹⁸ Numerous scientific studies have found that EPA’s 2010 outdoor NO_x

¹¹ Gary Adamkiewicz et al., *Moving Environmental Justice Indoors: Understanding Structural Influences on Residential Exposure Patterns in Low-Income Communities*, 101 Am. J. Public Health S238 (2011), available at <https://www.ncbi.nlm.nih.gov/pubmed/21836112#>.

¹² See UCLA FIELDING SCHOOL, *supra* note 6, at 16 (and citations therein).

¹³ See *id.*; SEALS & ANDEE KRASNER, *supra* note 2, at 16 (and citations therein).

¹⁴ See U.S. Env’t Prot. Agency, *Care for Your Air: A Guide to Indoor Air Quality*,

<https://www.epa.gov/indoor-air-quality-iaq/care-your-air-guide-indoor-air-quality> (June 1, 2020)

(“Carbon monoxide. . . is a colorless, odorless gas that interferes with the delivery of oxygen throughout the body [and] causes headaches, dizziness, weakness, nausea and even death. . . . Nitrogen dioxide (NO₂). . . is a colorless, odorless gas that causes eye, nose and throat irritation, shortness of breath, and an increased risk of respiratory infection.”).

¹⁵ Emily C. Dooley, *California Wants to See How Cooking With Gas Affects Indoor Air*, BLOOMBERG GREEN (May 8, 2020), <https://www.bloomberg.com/news/articles/2020-05-08/california-wants-to-see-how-cooking-with-gas-affects-indoor-air>.

¹⁶ California Air Resources Board, *Combustion Pollutants in Your Home* (1994), available at <https://ww3.arb.ca.gov/research/indoor/combustf.htm>; see California Air Resources Board, *Report to the California Legislature: Indoor Air Pollution in California* 136-37, 144 (2005), available at <https://ww2.arb.ca.gov/sites/default/files/classic/research/apr/reports/l3041.pdf>.

¹⁷ Codes and Standards Enhancement (“CASE”) Initiative team on Multifamily Indoor Air Quality, <https://title24stakeholders.com/measures/cycle-2022/multifamily-indoor-air-quality/>.

¹⁸ Marian Goebes et al., *2022 California Energy Code (Title 24, Part 6), Multifamily Indoor Air Quality – Kitchen Range Hood Capture Efficiency Requirement* (Mar. 23, 2020), available at <https://title24stakeholders.com/wp-content/uploads/2020/01/T24-2022-Submeasure->



standard is not sufficiently protective of health indoors, especially for the most sensitive populations. As a result, government officials in Canada and at the World Health Organization have adopted significantly more stringent guidelines for indoor air quality than EPA's outdoor standards.¹⁹

The CEC should **promptly convene a Workshop on Indoor Air Quality** that brings together public health and air quality experts—including CARB staff and academic researchers—to review the best available science on indoor air pollution and health. This Workshop is urgently needed, in order to ensure that these experts' findings can help inform ventilation requirements in the 2022 Building Energy Efficiency Standards.

Mounting scientific research finds that millions of Californians are living in buildings where the indoor air pollution threatens their families' health. Only by understanding the latest research on indoor air pollution can the CEC set the state on a path toward ensuring that all Californians are able to live in safe and healthy buildings.

Respectfully submitted,

Mothers Out Front

Physicians for Social Responsibility

Rocky Mountain Institute

Sierra Club California

[Summary KITCHENRANGEHOOD.pdf](#); Codes and Standards Enhancement (CASE) Initiative 2022 California Energy Code, Multifamily Indoor Air Quality Draft CASE Report, 2022-MF-IAQ-D (May 2020), https://title24stakeholders.com/wp-content/uploads/2018/10/MF-IAQ_Draft-CASE-Report_Statewide-CASE-Team.pdf.

¹⁹ See Health Canada, Residential Indoor Air Quality Guideline: Nitrogen Dioxide (2015), available at <https://www.canada.ca/en/health-canada/services/publications/healthy-living/residential-indoor-air-quality-guideline-nitrogen-dioxide.html>; World Health Organization (Regional Office for Europe), WHO Guidelines for Indoor Air Quality: Selected Pollutants (2010), available at <https://apps.who.int/iris/handle/10665/260127>. Compare U.S. EPA, NAAQS Table, <https://www.epa.gov/criteria-air-pollutants/naaqs-table> (Apr. 10, 2020).