



SUSTAINABILITY ADVISORY COMMITTEE

Green Paper: Are gas stoves hazardous to your health?

Prepared by the Sustainability Advisory Committee

Have you seen articles in the newspapers about gas stoves recently? Is gas cooking at home endangering me and my family's health? Is it true that a "real" chef would never cook with anything but gas? Is home use of gas a significant contributor to climate change? A review of scientific literature by the City' Sustainability Advisory Committee indicates there are health risks with home gas use. Health risks are determined by scientists by studying two large groups of people who only vary in one parameter, in this case by having a gas stove or not in their home. The study then determines the incidence of a particular disease (e.g., asthma, cardiovascular) in the two groups. If there is a statistical significance between the disease frequency between the two groups, then there is a health risk. Many studies have been done to determine potential health risks associated with cooking on a gas stoves. Health risk does not mean you *will* get the disease, but rather that you have an increased chance due to whatever variable is studied, in this case, cooking with a gas stove.

It is well known that burning any kind of fossil fuel indoors is harmful to health in the long run. This is why there is a global effort to promote clean cooking and reduce indoor pollution. Even the [World Bank](#) promotes clean cooking as a corporate priority¹. The recent United Nation's IPCC reports have told us that we must stop burning fossil fuels to avoid the worst impacts of climate change². Scientific studies have shown the health risks of burning natural gas (which is >95% composed of methane, a major driver of climate change) in your kitchen. Because of the health risks of gas stoves, and because of the climate crisis, many communities have adopted ordinances that encourage the use of electric appliances instead of gas appliances. In addition to methane, other indoor air pollutants from burning gas have been documented such as nitrogen oxides, carbon monoxide, formaldehyde, and small particulates³. Nitrogen dioxide is a lung irritant linked to asthma, and is a precursor to smog. Indeed, many studies have shown that the use of gas for indoor cooking are associated with an increased risk of asthma and other respiratory diseases, especially in children³. One study estimated that 21% of the cases of childhood asthma in California could be prevented if a gas stove was not present⁴. Other potential health risks associated with burning gas in homes include cardiovascular diseases and premature mortality³.

A new study from Stanford University found that cooking with gas stoves released detectable levels of the air pollutant benzene that in some homes raised indoor benzene concentrations above well-established health benchmarks^{5,6}. In this study, the levels of benzene measured exceed the benzene

concentrations in secondhand tobacco smoke, which is well known to increase cancer risk. Two studies published last year showed that even when gas stoves are turned off, they can leak small levels of benzene and methane^{7,8,9}. Using an exhaust vent above the stove is highly recommended, and it will help to remove some of the pollutants, but such vents will not remove them all, and the quality of the venting is variable¹⁰. Opening your windows in the kitchen will also help.

An alternative to gas stoves are Induction cooktops, which are innovative, modern, and efficient electric alternatives¹¹. Two of America's top restaurants, the French Laundry in Napa Valley and Alinea in Chicago are using induction cooking, and many other top eateries and chefs are following the trend, finding that induction cooking is better¹². Induction cooktops rely on electromagnetic currents that directly generate heat in the metal of the pot or pan. They provide more precise control over temperatures for cooking and can keep a low simmer more accurately¹¹. They also come to high temperatures quickly so that water boils more rapidly than on a gas or a conventional electric stove. They are safe, since you cannot leave the burner on – the heat is not generated in the cooktop but rather in your pot or pan. A portable single burner induction cooktop costs about ~\$100, and if you would like to try one out for free for three weeks, the San Diego Green Building Council loans them out (www.ehomecooktops.com). Approximately 68% of California homes currently use gas for cooking, but the average across the United States is only 35%¹³. Cooking with induction instead of gas helps not only indoor air quality now, but also helps reduce greenhouse gas emissions for future generations.

Let's fight the climate crisis and also reduce indoor air pollution. Cook with induction or electricity, not gas.

¹[World Bank clean cooking](#)

²<https://www.unep.org/resources/report/climate-change-2023-synthesis-report>

³[UCLA 2020 study: Effects of Residential Gas Appliances on Indoor and Outdoor Air Quality and Public Health in California](#)

⁴<https://www.mdpi.com/1660-4601/20/1/75>

⁵<https://pubs.acs.org/doi/10.1021/acs.est.2c09289>

⁶<https://www.latimes.com/environment/story/2023-06-21/cooking-with-gas-may-be-as-bad-as-inhaling-second-hand-smoke>

⁷<https://pubs.acs.org/doi/10.1021/acs.est.2c02581>

⁸<https://pubs.acs.org/doi/10.1021/acs.est.1c04707>

⁹<https://www.latimes.com/environment/newsletter/2022-10-27/boiling-point-gas-stoves-indoor-home-air-pollution-boiling-point>

¹⁰<https://pubs.acs.org/doi/abs/10.1021/es3001079>

¹¹<https://www.nytimes.com/2022/03/11/dining/induction-cooking.html>

¹²<https://www.sierraclub.org/sierra/2022-1-spring/notes-here-there/chefs-turn-gas-and-light-induction-cooktops>

¹³<https://www.mdpi.com/1660-4601/20/1/75>