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THE BRONX

Bronx Residents Got Rid of Their Gas Stoves. Their Air Quality Markedly Improved.

In a pilot program at NYCHA, households with induction stoves showed a 35% decrease in nitrogen dioxide and a nearly 43% difference in carbon monoxide.

BY SAMANTHA MALDONADO | JAN. 31, 2023, 11:00 A.M. UPDATED MAY 2, 2023, 12:32 P.M.

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Frying pan on modern black induction stove, cooker, hob or built in cooktop with ceramic top in white kitchen interior Credit: NavinTar/Shutterstock

Public housing residents who traded their gas stoves for electric induction ones saw improved air quality compared with their neighbors, according to the new results of a pilot program across 20 apartments at a complex in The Bronx.

Run by the nonprofit WE ACT for Environmental Justice, in partnership with the New York City Housing Authority, the Association for Energy Affordability, Columbia University Mailman School of Public Health and Berkeley Air Monitoring, the experiment involved

Blumenthal School of Public Health and Berkeley Air Monitoring, the experiment involved switching out gas stoves for induction units in 10 apartments at 1417 Watson Avenue, as [THE CITY reported last February](#).

After a 10-month run, the air quality in those households was compared to 10 apartments still using gas stoves.



The households with electric ovens showed a 35% decrease in daily concentrations of the pollutant [nitrogen dioxide](#) and a nearly 43% difference in daily concentrations of [carbon monoxide](#), according to the [study results](#) released Tuesday.

The findings come on the heels of a [national frenzy](#) over possible federal regulations of gas stoves.

Shavon Marino, 34, received an induction stove at the start of the experiment and although she had to learn how to control the heat without knobs, she quickly grew to appreciate the oven. Marino said she was particularly impressed with how fast it cooked her food and the ease of cleaning the flat stovetop.

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And as the mom of a 7-year-old, she didn't take the air quality improvements for granted, either.

"It cooks better and just for the safety of my daughter, that's why I like the stove," Marino said. "As she gets older, I think this stove would be a great teaching tool for my daughter."

Indoor Environmentalism

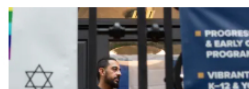
Traditional indoor gas stoves burn methane, a planet-warming greenhouse gas more potent at trapping heat than carbon dioxide. But beyond the larger climate concerns, gas stoves can pose immediate health risks to people in a household.

Previous research has [shown](#) that the pollutants released when turning on a gas stove are associated with causing or worsening respiratory illnesses.

An alarming December 2022 [study](#) estimated that 18.8% of childhood asthma cases in New York might be prevented if households didn't have gas stoves.

A Bloomberg News report following that study indicated that the head of the U.S. Consumer Product Safety Commission was considering banning gas stoves across the country – but the agency later said that they were [only looking into slight regulation](#).

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In the Bronx, in addition to continuous air monitoring, researchers measured pollutants while preparing a “standardized” meal of steamed broccoli, spaghetti with tomato sauce and chocolate chip cookies. They made the meal three times each in six households — two with gas stoves and two with induction.

The researchers found that, while cooking using a gas stove, nitrogen dioxide concentrations were nearly three times as much when using an induction stove. In fact, measurements of nitrogen dioxide concentrations in the kitchens with gas stoves reached levels above what the U.S. Environmental Protection Agency [considers](#) “unhealthy for sensitive groups.”

During the cooking tests, “an induction cooking household’s pollution didn’t change at all,” said Michael Johnson, technical director at the Berkeley Air Monitoring Group. “It’s another data point we’re seeing that reinforces this narrative that cooking with gas increases levels of NO₂ [nitrogen dioxide] and other pollutants in your home to levels that are often unhealthy.”

Beyond stoves, other sources of pollutants like nearby gas boilers and cars also affected the levels of pollutants in the apartments studied, researchers said.

Overhaul Improvements

Misbath Daouda, a PhD candidate at Columbia University Mailman School of Public Health who worked on the study, [noted](#) the health benefits of overhauling an entire building’s worth of fossil fuel-powered appliances.

“The transition would need to not only focus on gas stoves as a single appliance, but look at other systems that need to be replaced or improved in those homes to improve air quality and also meet [carbon emission reduction goals](#) — and that would include heating systems,” Daouda said.

A full-building transition would greatly decrease the risk of fires and accidents from people using their gas stoves to heat their homes in the winter, she added. Newer [electric stoves with batteries](#) would still be usable if the power failed.

NYCHA is preparing to install heat pumps in all apartments in the 96-unit Bronx, as well as a new electrified hot water system.



NYCHA resident Shavon Marino attended a cooking class to learn to use her new induction stove. Feb. 11, 2022. Credit: Hiram Alejandro Durán/ THE CITY

“The collaboration with WE ACT has helped NYCHA steer its decarbonization commitments, recognizing the clear air quality benefits of electrified cooking,” said NYCHA spokesperson Nekoro Gomes. “We continue to strive for wider implementation of this technology and we are thrilled to see the residents of 1471 Watson enjoying their new induction stoves.”

Switching to electric appliances can raise some concerns about [expensive utility bills](#). The researchers estimated that operating an induction stove would cost about \$6 more per month on electricity bills. But households that only pay for cooking gas would see their gas bills zero out, allowing for a monthly cost saving of about \$11, the study found.

“Everyone deserves to live in a healthy home, regardless of your income, and regardless of the kind of housing that you live in,” said Sonal Jessel, WE ACT’s director of policy. “It’s ultimately really important that we’re finding pathways to ensure that as we are transitioning, it’s affordable and attainable for all populations.”

Now that the pilot program is complete, residents in the 10 control apartments can have induction stoves installed.

“They were impatient to get them,” Daouda said with a laugh. And no one who received an induction stove as part of the program asked for their old gas stove back.



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Samantha is a senior reporter for THE CITY, where she covers climate, resiliency, housing and development. [MORE BY SAMANTHA MALDONADO](#)

How NYC Moves



Hi, I’m Jose Martinez, THE CITY’s transportation reporter, and I’ve spent close to 30 years as a reporter in New York City, including the last 13 covering the subways, buses, commuter railroads, taxis, ferries and more — everything that helps you get around NYC. As I’m constantly reminded in my job, reliability is a must.

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