



State Policy Approaches to Address Gas Stove Pollution

Carbon-Free Buildings

August 2023



Transforming the global energy system to secure a clean, prosperous, zero-carbon future for all.



Disclaimer for Partner Use:

This presentation is for informational purposes only. It does not represent our recommendations, but rather, our best understanding to date of the landscape of potential policy approaches available to state governments to mitigate the negative air quality and health impacts of gas stoves. Details may be modified in the future and viable approaches may vary by state.



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2. Electric Stoves + Ventilation as Solutions
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1. Context / Background

- Mounting Scientific Evidence Connecting Gas Stoves to:
 - Combustion Pollution and Poor Indoor Air Quality
 - Health Risks to Low-Income Households and Children
- Groundswell of Public Attention

2. Electric Stoves + Ventilation as Solutions

3. Potential State Policy Approaches



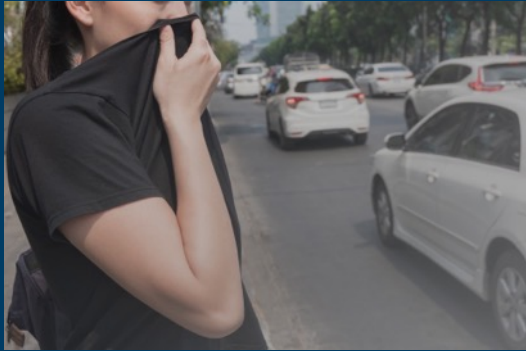
SIERRA
CLUB

HEALTH EFFECTS FROM GAS STOVE POLLUTION

PUBLISHED MAY 5, 2020



Gas stoves are an overlooked health risk



Release similar pollutants
as cars



Not universally required to
be vented outside



50+ years of health studies
showing the risk of cooking
with gas



Lower-income households
likely at higher risk



42% increased risk of asthma
symptoms for children in homes
with gas stoves



Similar to the asthma risk of
kids living with a smoker



In the US, 1 out of 3 homes cook with gas.

Gas Stoves Release...

**Carbon Monoxide
(CO)**

**Nitrogen Dioxide
(NO₂)**

**Particulate Matter
(PM_{2.5})**

**Benzene
(C₆H₆)**

What is it?

Odorless, invisible gas

Reddish-brown to colorless gas

Inhalable particles 2.5 microns in diameter or smaller

Colorless, sweet-smelling liquid or vapor

What are the health impacts?

CO poisoning, ranging from mild to fatal

Studies are investigating risks of long-term, low-level exposure to CO

Inflames lining of the lungs

Linked to asthma development & can aggravate respiratory symptoms

Can penetrate the lungs and blood stream

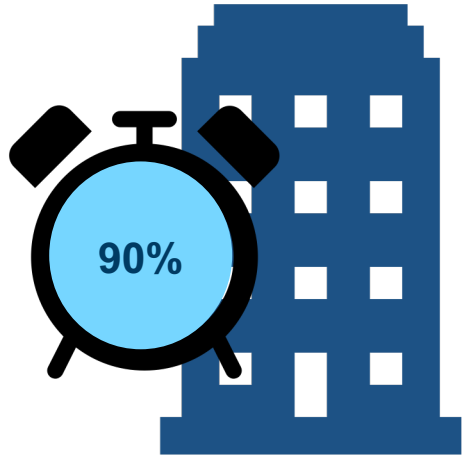
Linked to asthma, respiratory inflammation, & premature death

Linked with higher cancer risk

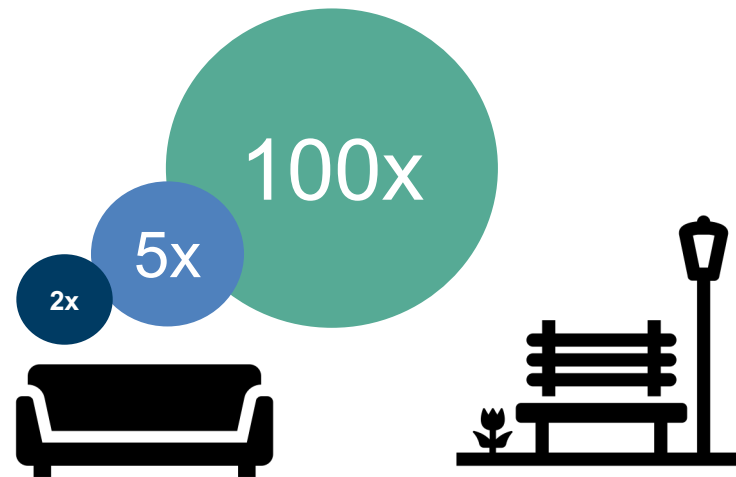
Studies have also found harm to respiratory, nervous, and reproductive systems

Indoor air quality is often worse than outdoor air

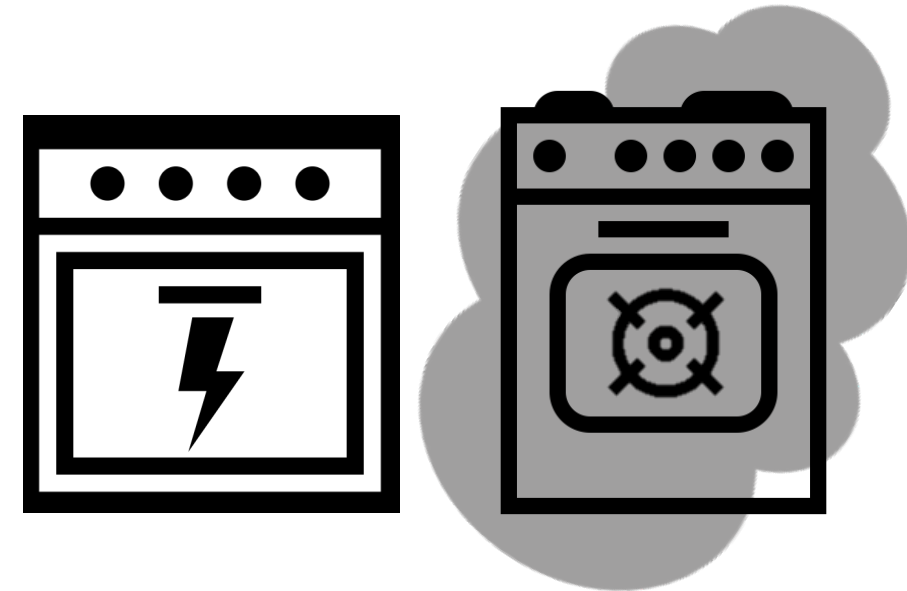
We spend up to **90%** of our time indoors



EPA states indoor pollutant levels may be **2 to 5** and as much as **100 times** higher indoors than outdoors



Homes with gas stoves have **50 - 400%** higher NO₂ emissions than homes with electric stoves



Indoor NO₂ Emissions from Gas Stoves Often Exceed Outdoor Standards

Outdoor Standards for NO ₂	1-hr average (ppb)
US National Standard (EPA)	100
Canadian National Standard	60
California State Standard	180
Indoor Guidelines for NO ₂	1-hr average (ppb)
Canada	90
World Health Organization	106

Measured NO ₂ Emissions from Gas Stoves	Peak (ppb)
Baking cake in oven	230
Roasting meat in oven	296
Frying bacon	104
Boiling water	184
Gas cooktop - no food	82–300
Gas oven - no food	130–546



Lower-income Households May be at a Higher Risk of Exposure to Gas Stove Pollution

FACTORS CONTRIBUTING TO HIGHER LEVELS OF NO₂ IN HOMES:



Smaller unit size



More people per home



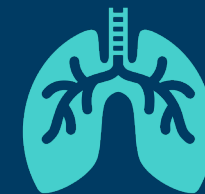
Older homes, inadequate ventilation



Using the stove/ oven for supplemental heat



Higher exposure to outdoor pollution



Greater asthma burden

Living in a home with a gas stove increases the risk of asthma in children

42% increased risk of experiencing asthma symptoms

24% increased risk of being diagnosed with asthma by a doctor

32% increased risk of experiencing symptoms & being diagnosed by a doctor

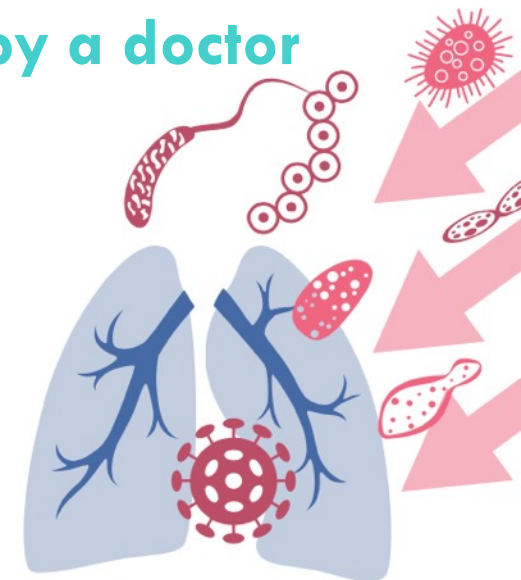
Children are more susceptible to air pollution than adults.
3 main reasons:



Higher **breathing rates**
and more **physical activity**

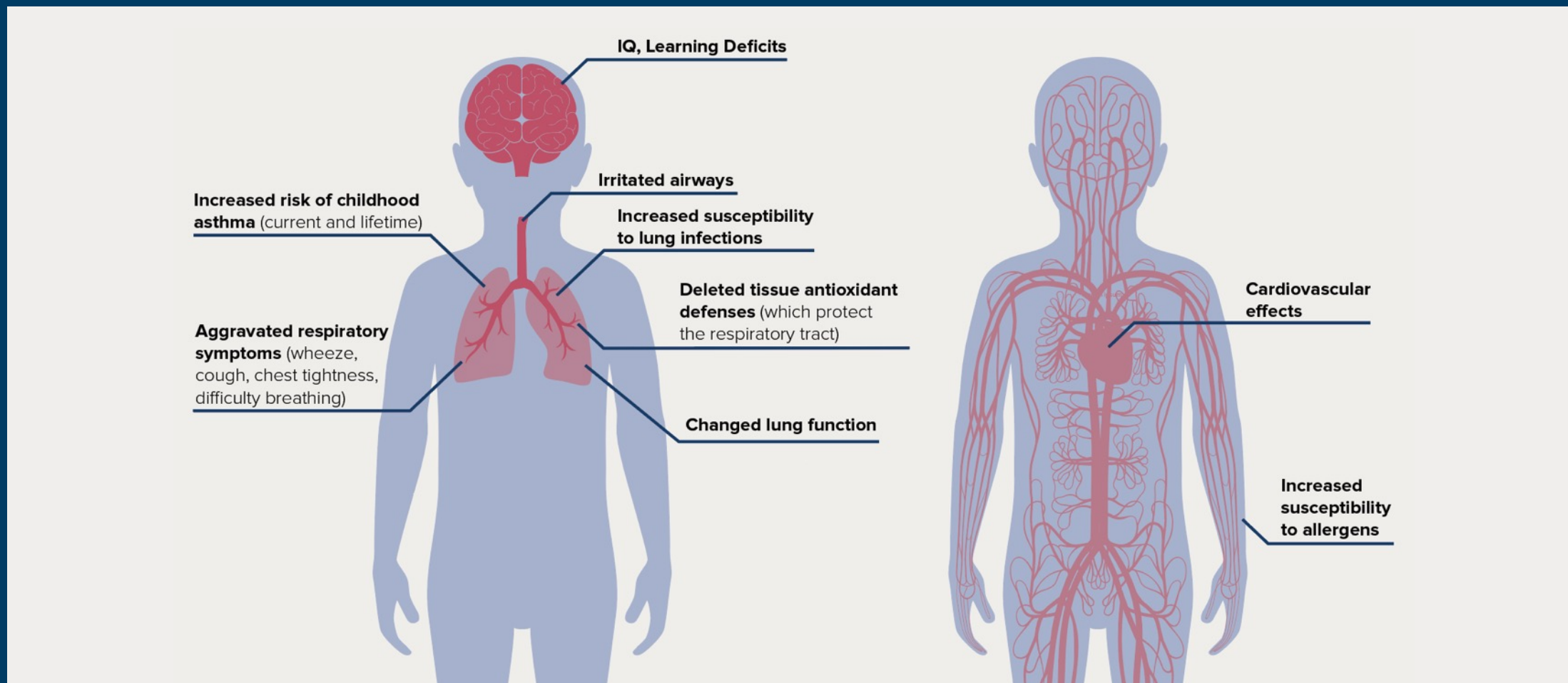


Higher lung surface to body ratios
and smaller bodies



Immature lungs and
immune systems

Health effects of NO₂ in children may include:

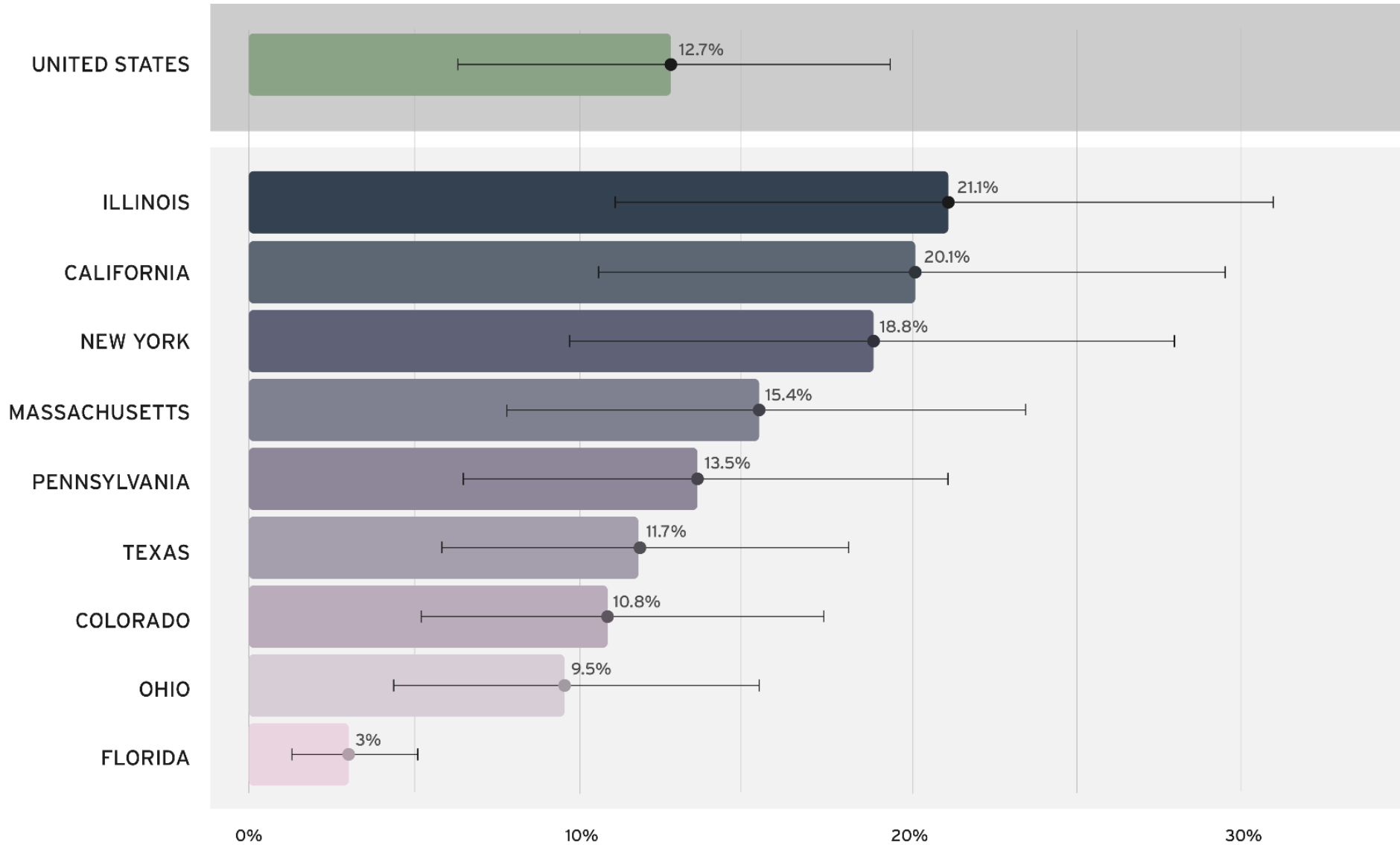


12.7%

of current childhood asthma in the US
is attributable to **gas stove use.**

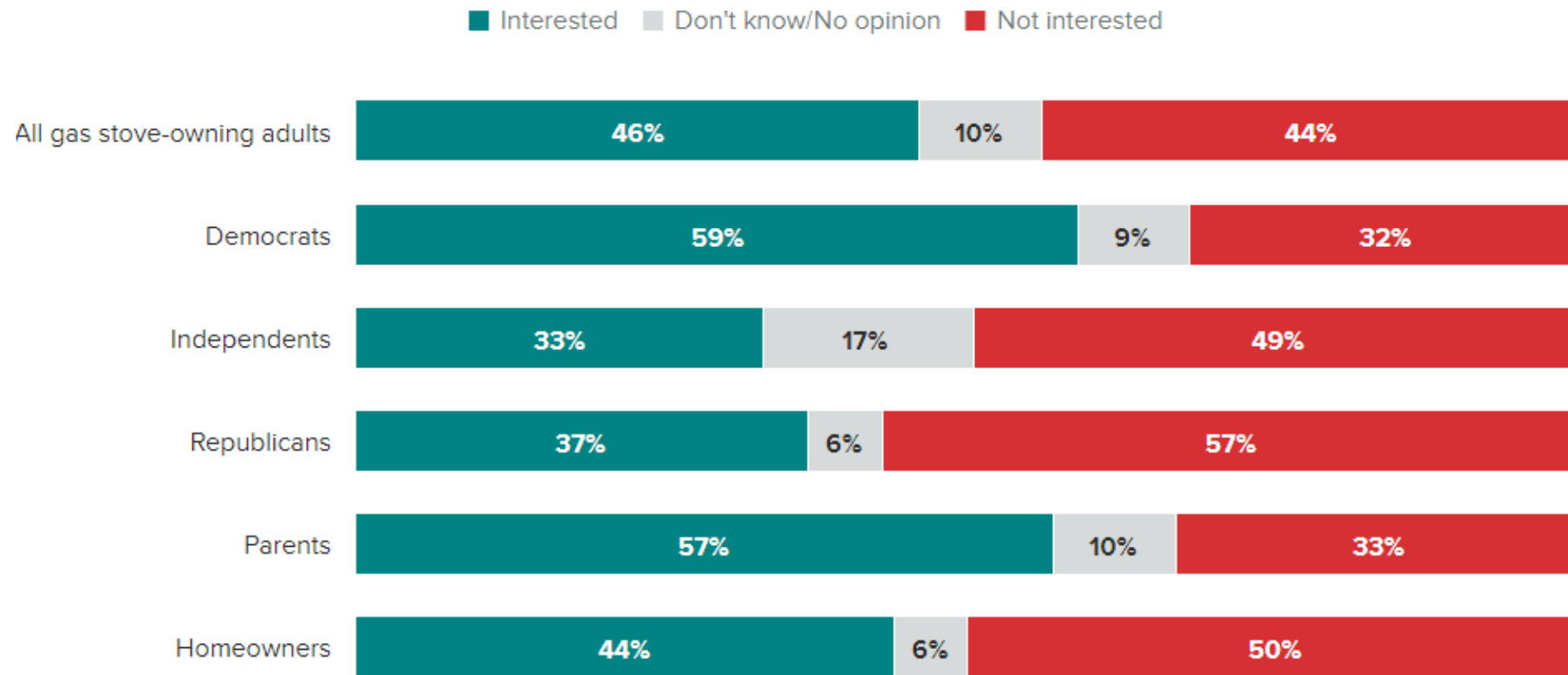
Several states have even higher numbers than the national rate, including Illinois (21.1%), California (20.1%), New York (18.8%), Massachusetts (15.4%) and Pennsylvania (13.5%).

Population Attributable Fraction of Current Childhood Asthma Associated with Gas Stove Usage



Many Gas Stove-Owners Show Interest In Replacing Their Unit After Seeing Study Showing Link to Childhood Asthma

Gas stove owners were asked if they would be interested in replacing their unit after being informed of an RMI study that found that 1 in 8 cases of asthma in children were believed to be caused by natural gas stove pollution.



Medical and public health groups are speaking up



Alliance of Nurses for
Healthy Environments





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Transition from gas to electric stoves



Ensure healthy levels of ventilation

Hoods vented to the outdoors are more effective than the more common recirculating hoods

Differentiated ventilation requirements protect households with gas stoves

Automatic ventilation may become a common solution helping to overcome low use of hoods





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 - Empowering Consumers
 - Prioritizing Tenant Protections
 - Unlocking Funding

Educating & Protecting the Public

Policy Approach	Potential Authority Figure(s)	Example(s) / Precedent
<p>1A. Hearings/investigations on gas stove health impacts</p>	<ul style="list-style-type: none"> • Legislatures • Public Health Agencies • Air Agencies • Building Code Agencies • Governor (Exec Order) • Attorneys General 	<ul style="list-style-type: none"> • EPA/CPSC 1986 • CARB ZEAS Rulemaking, IAQ Nov 2020, Scoping Plan, IAQ May 2022 • SCAQMD AQMP 2022
<p>1B. Investigation into misrepresentations by gas utilities and/or gas stove manufacturers</p>	<ul style="list-style-type: none"> • State Attorneys General offices (and city/county counsel) • Consumer Protection Agencies 	<ul style="list-style-type: none"> • CA Public Advocates Office • Attorneys General on CPSC's Gas Stove action
<p>1C. Updated guidelines on indoor air quality</p>	<ul style="list-style-type: none"> • Air Agencies • Public Health Departments • Occupational Health Agencies 	<ul style="list-style-type: none"> • World Health Organization • Health Canada • Illinois Public Health Dept.

Educating & Protecting the Public, cont'd

Policy Approach	Potential Authority Figure(s)	Example(s) / Precedent
<p>1D. Warning labels on gas stoves</p>	<ul style="list-style-type: none"> • Legislature • Public Health Agencies • Consumer Protection Agencies • Courts 	<ul style="list-style-type: none"> • Illinois Gas Stoves • CPSC Labeling Requirements • Prop 65 Statute
<p>1E. Differentiated ventilation standards w/extra ventilation required for gas compared to electric</p>	<ul style="list-style-type: none"> • Building Commissions 	<ul style="list-style-type: none"> • California Energy Commission • Washington State
<p>1F. Require gas stoves to be sold/installed with companion hoods [possibly automatic ventilation required]</p>	<ul style="list-style-type: none"> • Building Commissions • Public Health, Occupational Health, or Air Agencies 	<ul style="list-style-type: none"> • Automatic ventilation

Empowering Consumers

Policy Approach	Potential Authority Figure(s)	Example(s) / Precedent
2A. Voluntary gas stove recalls (i.e., manufacturers must replace gas stoves upon consumer request)	<ul style="list-style-type: none">• Consumer Protection Agencies• Legislature	<ul style="list-style-type: none">• Gas Stove Carbon Monoxide and Gas Leak/Fire Recalls
2B. Require home warranty companies to offer homeowners option to replace gas with electric stoves	<ul style="list-style-type: none">• Consumer Protection Agencies• Legislature	<ul style="list-style-type: none">• Colorado HB23-1134

Prioritizing Tenant Protections

Policy Approach	Potential Authority Figure(s)	Example(s) / Precedent
3A. Mandated landlord-tenant disclosure of gas risks/ventilation need upon move-in	<ul style="list-style-type: none">• Legislature• State affordable housing agencies	<ul style="list-style-type: none">• Federal & State Disclosures
3B. Landlord obligation to remediate health risk, especially for asthmatic residents (e.g., providing induction hot plate or better ventilation)	<ul style="list-style-type: none">• Legislature• Courts (e.g., implied warranty of habitability)	<ul style="list-style-type: none">• Implied Warranty of Habitability• NYC Local Law 55 of 2018 – Asthma-free Housing

Unlocking Funding

Policy Approach	Potential Authority Figure(s)	Example(s) / Precedent
4A. Unlocking new funding & incentives for tenants to electrify, undertake health protective steps	<ul style="list-style-type: none"> Budget Committee Federal or State Dept of Finance, Energy, Buildings 	<ul style="list-style-type: none"> IRA tax rebates
4B. Medicaid funding for gas appliance retrofits & other health protective actions	<ul style="list-style-type: none"> State Medicaid Office 	<ul style="list-style-type: none"> Medicaid Reimbursement for Home-Based Asthma Services Medi-Cal bill Contra Costa Asthma Initiative
4C. State procurement (i.e., no state funds on gas stoves)	<ul style="list-style-type: none"> Governor (Exec Order) Legislature 	<ul style="list-style-type: none"> HUD GRRP no FF appliances
4D. State financing of non-state-owned facilities	<ul style="list-style-type: none"> Governor (Exec Order) Legislature 	
4E. Funding support or indoor air quality requirements for public housing	<ul style="list-style-type: none"> Housing authorities Cities 	<ul style="list-style-type: none"> MA Public Housing Healthy Homes Initiatives NYCHA Induction Challenge



Thank you!

Contact buildings-contact@rmi.org with any questions