

Episode 55x through 55z D. March 17, 2023, The Problem-Solving Issue

Ep 55x Union of Concerned Scientists 1 of 2 Ep55y Union of Concerned Scientists 2 of 2, California to New York Ep55z A. Oregon to Texas, United Kingdom Ep 55z B. United Kingdom, Europe, India 1 of 2 Ep55z C. India 2 of 2, Japan discloses 1 of 2 Ep55z D. Japan discloses 2 of 2, South Korea, Health Effects of PM2.5

Residents Against Wood Smoke Emission Particulates (see RAWSEPresidents.wordpress.com and Scroll Down for PDFs of articles with U R L's to search on, and on the website are links to 10 minute Tiktok and Youtube videos and 30 minute podcasts on Spotify and Podbean).

United States

RAWSEP View: Having testified at the February 2023 Environmental Protection Agency (E P A) hearing, in which I asked the E P A to lower the Particulate Matter of 2.5 micrometer size (PM2.5) limit to 8 micrograms per meter cubed annually, and 25 micrograms per meter cubed daily, I found this analysis by the Union of Concerned Scientists of the testimony of some industry representatives at the same E P A hearing on PM2.5 limits fascinating. Although the Union of Concerned Scientists did not mention wood burning in this article, Biomass industry representatives and Residential Wood Heating Industry representatives use the same tactics described in this article to fight against regulation or elimination of biomass (wood) burning and residential wood burning. Additionally, the wood burning industry lies when it states that wood burning is carbon neutral, in order to protect the wood burning industry's government subsidies using the fallacious construct, rejected by scientists, that wood burning is Carbon Neutral and Zero Carbon and "renewable" (According to the Carbon Neutral or Net Zero argument, hundreds of years of pollution later, the oxygen that fully grown replacement trees finally produce magically negates the pollution of the original wood burning, which wood burning produces more PM2.5 than the fossil fuel coal and produces 450 times the pollution of the cleanest fossil fuel, Natural Gas).

The tactics of the Fossil Fuel Industry described in this article are 1) the Fossil Fuel Industry denying the science that shows PM2.5 harm to human health, and 2) the Fossil Fuel Industry saying that economic arguments should be considered, rather than the simple argument that PM2.5 is harmful to human health. This author makes the point that industry disinformation is a tactic to dismantle public health protections, whether the public health protection is from tobacco products or from climate change, or now from particulate pollution. RAWSEP would like to make the point that the industrial wood burning industry and the residential wood burning industry use disinformation also, to dismantle public health protection to neighbors of residential wood burners.

The Union of Concerned Scientists not mentioning wood burning in this article is troubling, since ignoring wood burning is ignoring a significant share of PM2.5 pollution. Ignoring wood burning is ignoring science that proves wood burning contributes to particulate pollution. In the case of residential wood burning, pollution occurs in hyper-localized areas sometimes far from PM2.5 monitoring stations. Ignoring wood burning means ignoring the health effects of industrial biomass burning and residential wood burning. Wood burning produces more particulates than the fossil fuel coal, and wood burning emits 90% PM2.5 particulates.

How to solve the problem of Residential Wood Burning pollution affecting the health and lives of near neighbors?

1) Would only lowering the EPA PM2.5 safe limit from 12 to 8 annually and from 35 to 25 daily solve the problem of PM2.5 pollution from residential wood burning? If this new EPA PM2.5 standard was 2) coupled with government programs whether on a federal, state or local level giving PurpleAir PM2.5 monitors to neighbors of residential wood burners who complain about air pollution from the wood burning, and if 3) those first two measures were coupled on a federal, state or local level with writing, passing and enforcing laws against residential wood burning violating the safe levels of PM2.5 that were detected by neighbors' PM2.5 monitors. Entities such as the Union of Concerned Scientists who concentrate on the macro level of industry may continue their disinterest in the micro level of Residential Wood Burning, or even continue their disinterest in the macro level of Biomass Industrial (wood) Burning. Both Residential Wood Burning and Industrial Biomass Burning create more particulates (PM2.5) than the fossil fuel Coal burning. However, as laws are passed and enforced against Residential Wood Burning, the ignorance of the pollution caused by Residential Wood Burning will become harder to maintain. And ignorance of scientific evidence that wood burning is NOT net zero and NOT Carbon Neutral will also become harder to maintain, given the evidence from hyper-localized PM2.5 monitors in the yards of near neighbors of wood burners, with online historical data on PurpleAir and U S Airnow Maps of Smoke and Fire there to download by anyone, and remind the general public and government officials daily of the levels of PM2.5 that residential wood burning causes. The words fossil fuel trip off the tongue, but hopefully the

plain description, residential wood burning, will be recognized as a problem that can be solved by changing actions of individuals. The good news is that changing the actions of each individual is easier than changing the macro actions of an industry. Each benchmark met is a little victory for clean air. Personal actions matter and can have a positive effect on society. The government has a history of taking action to protect human life and health by employing breathalyzer tests to stop drunk driving, after a successful campaign by Mothers Against Drunk Driving (M A D D) asking the government to take action. The government could further protect human life and health by employing hyper-localized PM2.5 monitors in the yards of near neighbors to stop the pollution of residential wood burning.

[Industry's Tactics to Expose You to More Soot Pollution - Union of Concerned Scientists](#)

UCS blog - Union of Concerned Scientists

EPA's PM 2.5 rule is a good step, but more is needed. The Clean Air Act requires the EPA to periodically review the science for six criteria air ...

Excerpt edited for Brevity and Clarity by RAWSEP.

DISINFORMATION STRATEGIES BY BUSINESS ABOUT PM2.5 safe limit

On February 21, 22 and 23, 2023 the Environmental Protection Agency (EPA) asked the public to provide oral comments on lowering the Particulate Matter of 2.5 micrometer size (PM2.5) from 12 micrograms per meter cubed annually and 35 micrograms per meter cubed daily to lower limits. Union of Concerned Scientists's [Sam Wilson](#), called on the EPA to follow the science and enact the strongest PM2.5 standards to protect people's health.

TACTICS TAKEN FROM TOBACCO LOBBY TACTICS

But the oral comments also included several speakers representing the industries producing a substantial amount of deadly PM2.5. Their main arguments come straight out of the [disinformation playbook](#): casting doubt on the science, and pressing the EPA to violate a law passed by Congress (to consider economics over the threat to human health). These disinformation strategies, first honed by the [tobacco companies](#), have a long history of successfully swaying public officials away from science-based decision making and towards industry-favored positions that gravely endanger public health.

BACKGROUND ON PM2.5

The [particulate matter](#), especially dangerous is PM 2.5, particulate matter 2.5 micrometer size.

PM 2.5 pollution is responsible for [millions of deaths](#) worldwide. harming heart and lung, with the ability to damage practically [every organ](#) in the body. One recent study found [99 percent](#) of world's population exposed to levels that the World Health Organization deems unsafe.

REAL ESTATE REDLINING PLACES COMMUNITIES OF COLOR NEAR INDUSTRY

Evidence (see [here](#), [here](#), and [here](#)) shows that Black, Indigenous, and people of color (BIPOC) communities exposed to more PM 2.5 pollution than white communities. One study linked the higher PM 2.5 pollution in BIPOC communities with the real estate practices which results in effective segregation, called redlining, [redlining practices of the 1930s](#), [continue](#) today.

ACCORDING TO THE UNION OF CONCERNED SCIENTISTS (who do not mention biomass or wood burning in this article)

The largest contributors to PM2.5 come from human-made emission sources that burn fossil fuels, such as [coal-fired power plants](#) and [vehicular emissions](#) of diesel and gasoline. This process is estimated to be responsible for [1 in 5 deaths worldwide](#). In the United States, of the 100,000 deaths every year associated with human-made sources of PM 2.5 pollution, [half of the deaths](#) are attributable to the burning of fossil fuels.

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THE FOSSIL FUEL INDUSTRY'S PAST TACTICS

The EPA's public hearing on its proposed PM 2.5 rule took place in late February over a three-day period. Of the [281](#) speakers who presented, more than [94 percent \(263 speakers\)](#) urged the EPA to lower the [annual](#) PM 2.5 standard to [8 micrograms](#) and lower the [24-hour standard](#) to [25 micrograms](#).

Of the [6 percent](#) of commenters who urged the EPA to retain or weaken the proposed PM 2.5 standards, the vast majority had direct ties to [industry](#). The speakers included representatives from the American Chemistry Council and American Petroleum Institute—industry trade groups infamous for casting doubt on public health and environmental science to benefit their clients' profit margins. For years, we at UCS have written extensively of the dangerous disinformation practices of the [American Chemistry Council](#) and [American Petroleum Institute](#) and their ongoing efforts to dismantle public health protections.

TWO INDUSTRY TACTICS WHILE OPPOSING LOWERING OF SAFE LIMIT FOR PM2.5

TACTIC ONE, SAY SCIENCE IS IN DOUBT (this is wrong factually)

Particulate matter pollution is one of the most well-studied types of air pollutants; for decades the evidence in the scientific literature has shown how deadly PM 2.5 pollution is. The EPA's [supplement to the integrated science assessment](#) on particulate matter runs to more than 300 pages and provides the [highest level](#) of scientific certainty possible.

TACTIC TWO, SAY THERE ARE ECONOMIC CONSIDERATIONS (this consideration is wrong, since the standards must protect human health above all else)

This argument stands in direct violation of the Clean Air Act. Standards for outdoor particulate matter are governed by [section 109](#) of the Clean Air Act which clearly states that the standard must be based on criteria that "are requisite to protect the public health."

The government can consider only science-based evidence that can protect public health. As a [congressional research service report](#) from 2017 put it: "For 45 years, EPA has interpreted Section 109 as prohibiting the [EPA] Administrator from considering costs in setting the standards."

During the public hearing, industry representatives asked the EPA to set less protective PM 2.5 standards. This position ignores the best available science and lets thousands of people die every year so that industries can continue their practices of burning fossil fuels and polluting the air.

INDUSTRY CAST DOUBT ON CLIMATE CHANGE AND IS TRYING TO CAST DOUBT ON PM2.5 POLLUTION

Reporters from the Guardian examined documents showing that the oil industry [knew for at least 50 years](#) that the PM 2.5 pollution associated with the burning of fossil fuels could harm human health. Just as fossil fuel industries have cast doubt on the science of [climate change](#) for decades, they are now using similar disinformation tactics to undermine the policy process protecting people from dangerous PM 2.5 pollution.

According to the [EPA's own analysis](#), with annual PM 2.5 standard at 8 micrograms per cubic meter, we will save the lives of between 6,600 and 12,000 people every year.

California, Bakersfield

[Bakersfield Named Worst Air Polluted Place in US | Cleaning & Maintenance Management](#)

Cleaning & Maintenance Management

According to The Guardian, the fine air pollution particles recorded, known as Particulate Matter (PM) 2.5, are emitted by cars, factories, ...

Excerpt

[An analysis by The Guardian](#) has revealed the worst 10 places for fine particle air pollution in the United States, with the area around Bakersfield, California topping the list. According to researchers, the places within the contiguous U.S. that were most affected by pollution were also areas with higher Black and Hispanic populations. Race, the article noted, appears to be more of an indicator of air pollution severity than that of income. "What we're seeing here is segregation," Julian Marshall, professor of environmental engineering at the University of Washington and co-director of the Center for Air, Climate and Energy Solutions told The Guardian. "You have segregation of people and segregation of pollution." According to The Guardian, the fine air pollution particles recorded, known as Particulate Matter (PM) 2.5, are emitted by cars, factories, wildfires, and [dusty agricultural activities](#). These particles can enter the lungs and bloodstream, causing deadly illnesses such as respiratory disease, heart attacks, and strokes. The analysis used data collected between 2011 and 2015 to determine which places were the nation's most polluted, which included areas within [Los Angeles and Chicago in the second and third spots](#), respectively, on the list.

California, Barrow County

[Attempt to use camping stove leads to fire that claimed 3 lives near Winder - Online Athens](#)

Online Athens

"The rubber house connecting the propane tank to a camping burner was leaking the gas, which was then ignited by a wood burning stove on the ...

The fire that killed three women at a home in Barrow County last Saturday was caused when one of the residents attempted to use propane gas on a camping stove.

The explosion occurred at about 12:40 a.m. at the house on Hidden Acres Road in a subdivision of single-family homes between Winder and Auburn.

The names of the victims have not been released as they were transported to the GBI Crime Lab for positive identifications and autopsy, according to the state agency.

Colorado, Boulder

[Boulder's Prescribed Burning Plan for Spring of 2023](#)

City of Boulder

For more information on the health impacts of smoke: [https://www.colorado.gov/pacific/cdphe/wood-smoke-and-health ...](https://www.colorado.gov/pacific/cdphe/wood-smoke-and-health...)

Idaho

[Wood stove insert issue cause in fatal fire | News | idahocountyfreepress.com](#)

Idaho County Free Press

According to the Idaho State Fire Marshal's Office, investigators determined a wood burning stove inserted into a fireplace had deteriorated over ...

Wood stove insert issue cause in fatal fire.

GRANGEVILLE — A fireplace insert issue is the cause in a March 2 residential fire that claimed the lives of Mary and Brett Lyons.

According to the Idaho State Fire Marshal's Office, investigators determined **a wood burning stove inserted into a fireplace had deteriorated over time**, resulting in superheated gases escaping and breaching the brick and mortar chimney. This exposed structural components to then ignite.

In a statement from the fire marshal's office: "It is always saddening when someone loses their life, especially under these circumstances. Our condolences to the family. As a reminder to all Idahoans, have your chimney and fireplaces inspected by a qualified technician annually." An 88 year old mother, and a 63 year old son died in their home on March 2 as a result of smoke inhalation.

Kentucky, Bowling Green

[1 firefighter injured after house fire on Richardsville Road - WNKY News 40 Television](#)

WNKY

The cause of the fire is believed to be the result of a wood burning stove venting in a damaged chimney flue, according to Lee.

BOWLING GREEN, Ky. – Richardsville Fire Department chief Brian Lee has confirmed one of their firefighters has been injured following a house fire. About a mile off of the road, units approached a challenging situation in a two-story single-family home with heavy smoke and high heat on the second floor. According to Lee, the house has sustained heavy damage on the second floor. RFD was assisted at the scene by Barren River and Gott fire departments. Lee confirmed one RFD firefighter was transported to a local hospital with injuries. The cause of the fire is believed to be the result of a **wood burning stove** venting in a damaged chimney flue, according to Lee.

New York

[New York State's burn ban begins March 16 - WBNG](#)

WBNG

The DEC said only charcoal or dry, clean, untreated, or unpainted wood can be burned. Burning garbage or leaves is prohibited all-year round in ...

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Oregon, Portland

[Weekday Wrap: Portland and regional air quality declining, report shows - OPB](#)

Oregon Public Broadcasting

The report looks specifically at a type of particulate pollution that hangs in the air from **wood smoke**. While particulate readings spike during ...

While the nation's overall air quality improves, the Northwest moves in another direction.

Despite a relatively mild wildfire season for smoke in the Portland metro region in 2022, a newly released report shows overall air quality decreased throughout the Pacific Northwest region compared to the previous year. The report looks specifically at a type of particulate pollution that hangs in the air **from wood smoke**. While particulate readings spike during wildfire season, **smoke from wood stoves and other sources of pollution also poses a problem during the winter**. Bowl-shaped areas like the Tualatin Valley have a more pronounced winter inversion effect, further contributing to pollution hanging in the air. While the United States' overall levels of pollution decreased in 2022, the Pacific Northwest trended in the opposite direction.

[Portland-area air quality getting worse, annual report card shows](#)

The Lund Report

New data released from IQAir shows smoke from **wood stoves** and pollution caused by other sources can also be a problem during the winter.

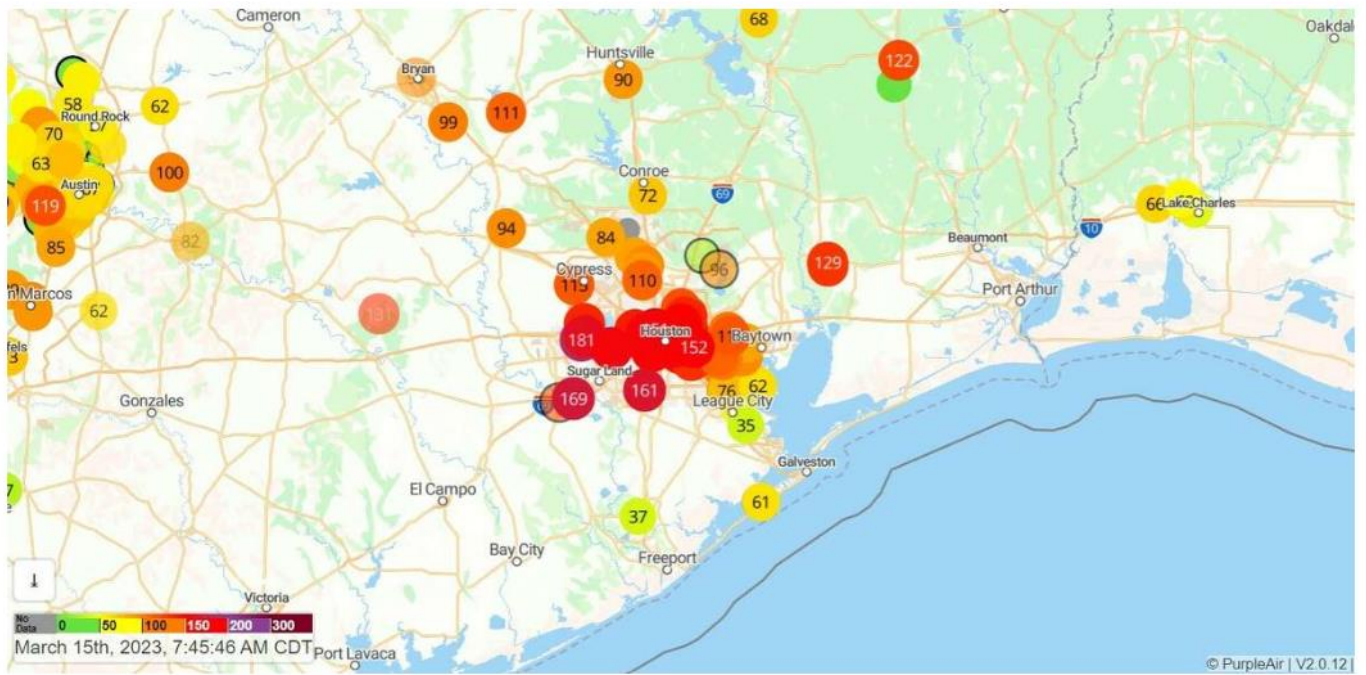
Texas, Houston

[Houston air quality downgraded from unhealthy to moderate - Houston Chronicle](#)

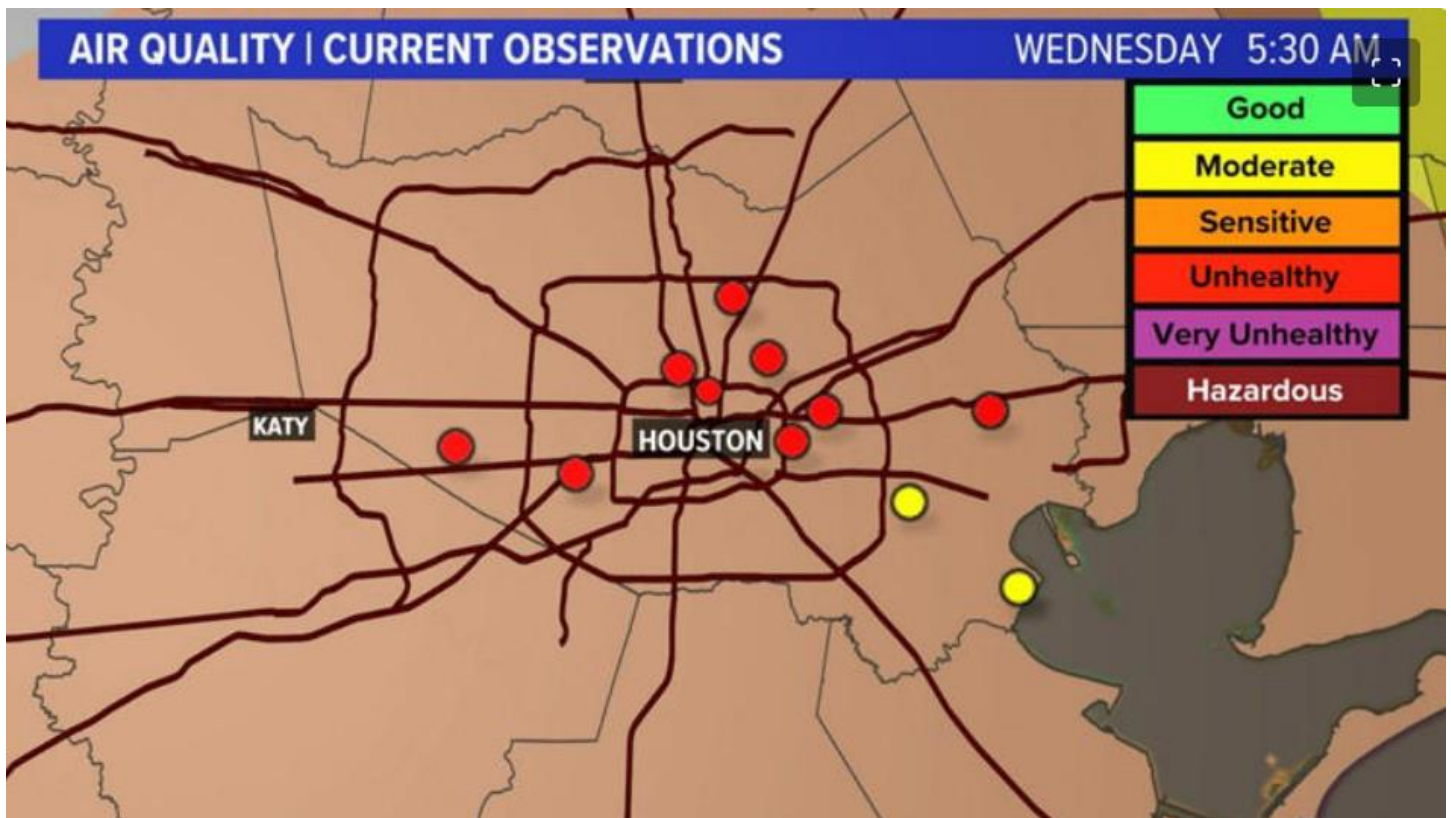
Houston Chronicle

Excerpt

If you felt yourself coughing and perhaps confused by what appeared to be smoke in the air during your Wednesday morning commute in Houston, you're not alone. Air quality has been terrible in the Houston area Wednesday morning, with most of the region rated unhealthy by about 6:30 a.m., according to the [air quality tracking site Purple Air](#). What made it so bad, and why was the air choked with smoke? The short answer: fires in Louisiana. The longer answer: yesterday, there were a number of controlled burns conducted in the southwestern portion of Louisiana, [according to Space City Weather's Matt Lanza](#). "Because our low-level winds are coming from the east and we have an inversion in place... that smoke cannot escape into the upper atmosphere and disperse, so it stays at ground level," As Lanza puts it, an atmospheric inversion basically means that "what ends up near the surface stays near the surface instead of being able to escape into the higher atmosphere." Houstonians worried about long-term smoked-laced skies can breathe easy, however: "As temperatures warm up after sunrise, that inversion will dissipate, and the smoke will dissipate with it, leading to a much nicer setup by late morning," Air Now reported levels of particulate matter 2.5 were especially high Wednesday morning. This is a measure of fine particulate matter in the air. Something in the air? Smoke causing air quality issues across Houston. Smoke from Louisiana has settled across Southeast Texas this morning making for [unhealthy air quality](#), Something in the air? Smoke causing air quality issues across Houston. The smoke should mix out by 11 a.m. and clear for the day. Can I go outside when there is poor air quality? According to the [National Weather Service](#), poor air quality can aggravate health issues such as asthma, heart conditions, and other respiratory conditions. Seniors, children, and those with compromised immune systems should be particularly careful. Those who are vulnerable like children, seniors, and those with respiratory issues should stay indoors if possible. If you have to go outside, limit it to strictly essential activities.



— Purple Air map shows unhealthy air quality in the Houston area.
Purple Air



United Kingdom

[Pollution: 90% of world population breathes air that exceeds WHO targets on particulate matter](#)

The BMJ

Only 12 countries were within the guideline value of $5 \mu\text{g}/\text{m}^3$ for annual $\text{PM}_{2.5}$ concentrations, said the fifth annual study by IQAir, a Switzerland ...

U K, Leicestershire

RAWSEP View: Bioethanol fire replaces wood fire, and is less polluting.

[Wood burning stoves alternative with smokeless fuel costing 75p an hour to run](#)

Leicester Mercury

According to Imaginfires, a bioethanol fire costs around 75p an hour to run, compared to £1.25 for burning wood. You can buy a litre of bioethanol, ...

Wood burning stoves alternative with smokeless fuel costing 75p an hour to run

Increased scrutiny on the emissions of [wood burning stoves](#) has forced many owners to take a look at climate friendly alternatives to using traditional timber logs, one of which is biofuel. Millions of people in Britain live in [smoke control areas](#), meaning they can only use fuels on DEFRA's approved list, one of which is [bioethanol](#). Bioethanol fuel is approved by DEFRA. Bioethanol fireplaces do not give off fumes or smoke, so you don't need a flue or a chimney and are completely compliant with DEFRA's current regulations. The fuel is renewable and made by fermenting the sugar and starch components of plant by-products, including sugarcane, corn, maize, wheat and waste straw.

It does not give off harmful emissions like [wood burning stoves](#) and does not require vast swathes of woodland to be chopped down, while bioethanol is also far more efficient than burning wood. Bioethanol is likely to be used more and more in the coming years as the climate crisis worsens.

Europe

[Air pollution - European Environment Agency](#)

European Environment Agency - europa.eu

Between 2005 and 2020, emissions of particulate matter, PM10 and PM2.5, fell by 30% and 32%, respectively.

Agriculture was the principal source of ...

Most European city dwellers are exposed to unsafe levels of air pollution. Improving air quality to match World Health Organization (WHO)-recommended levels could prevent more than half of premature deaths caused by exposure to fine particulate matter. Overview. Key facts. EU action. Air pollution emissions have declined in the last two decades, resulting in better air quality. Despite this improvement, air pollution remains the largest environmental health risk in Europe. An estimated 275,000 premature deaths are caused by fine particulate matter and 64,000 by nitrogen dioxide (NO2) each year. These pollutants are linked to asthma, heart disease, and stroke. Air pollution also causes morbidity. People live with diseases related to exposure to air pollution; this is a burden in terms of personal suffering as well as significant costs to the healthcare sector. Society's most vulnerable are more susceptible to air pollution impacts. Lower socio-economic groups tend to be exposed to higher levels of air pollution, while older people, children and those with pre-existing health conditions are more susceptible. Besides health issues, air pollution can considerably impact Europe's economy due to increased healthcare costs, reduced life expectancy, and lost working days across sectors. It also damages vegetation and ecosystems, water and soil quality, and local ecosystems.

EU urban population exposed to air pollutant concentrations above EU standards and WHO guidelines in 2020



Switzerland

[Choking cities: What's the pollution solution? | WION Climate Tracker - YouTube](#)

YouTube

This is according to the air quality report released by swiss firm IQAir based on the level of PM 2.5. Rohit Wellington tells you about which all ...

Asia

India

[Shocking! 78% Of Most Polluted Cities Are In India: We Are 8th Most Polluted Nation - Trak.in](#)

Trak.in

With a PM 2.5 level of 92.6 micrograms, India's Capital's level is almost 20 times the safe limit. Indian Domination in the Most Polluted List. The ...

[India 8th most polluted country in World: Report - Deccan Herald](#)

Deccan Herald

A comparison of PM 2.5 pollutants in 2021 and 2022 in six Indian cities showed that the air quality in Bengaluru and Hyderabad got worse while others ...

[South Asia registers dangerous air pollution levels in 2022 - La Prensa Latina Media](#)

La Prensa Latina

India ended 2022 as the eighth most polluted country in the world, registering an annual average PM 2.5 particulate-matter level of 53.5 microgram ...

[39 Of World's 50 Most Polluted Cities Are In India: Report - NDTV.com](#)

NDTV.com

While the PM 2.5 level has dipped to 53.3 micrograms/cubic meter,

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that is still over 10 times the World Health Organization's safe limit. The ranking ...

[India ranks 8th amongst the most polluted countries in world; 39 of 50 most polluted cities ...](#)

Free Press Journal

The ranking is based on the level of PM 2.5, a pollutant closely tracked by scientists and health experts of Swiss firm IQAir in its 'World Air ...

[India is home to 39 of the world's 50 most polluted cities: Report - The Federal News](#)

The Federal News

The report ranks countries based on the levels of PM 2.5, a pollutant closely monitored by health experts and scientists.

India ranks 8th amongst the most polluted countries in world; 39 of 50 most polluted cities are in country: Reports
The ranking is based on the level of PM 2.5, a pollutant closely tracked by scientists and health experts of Swiss firm IQAir in its 'World Air Quality Report.'

[FPJ Web Desk](#)

Excerpt edited by RAWSEP for brevity and clarity.

India ranked the world's eighth most polluted country in 2022, dropping from fifth place the previous year, according to the 'World Air Quality Report' by Swiss firm IQAir released on Tuesday.

Indian cities dominate the top of the list, which includes over 7,300 cities, the most the rankings have ever covered since 2017, when they covered less than 2,200.

While the PM 2.5 level has dipped to 53.3 micrograms/cubic meter, that is still over 10 times the World Health Organization's safe limit. The ranking is based on the level of PM 2.5, a pollutant closely tracked by scientists and health experts. The data was collected from 131 countries over the course of 30,000 ground-based monitors, either government- or non-government-operated.

Six Indian cities are in Top 10.

There are six Indian cities in the top 10, 14 in the top 20 (see table at the end), 39 in the top 50, and a staggering 65 in the top 100, up from 61 in the previous year. Delhi and New Delhi are both in the top 10, based on a new classification. The report puts the economic cost of air pollution in India at \$150 billion, with the transportation sector causing 20-35 percent of the PM 2.5 pollution. Other sources of pollution are industrial units, coal-fired power plants, and **biomass burning**.

Lahore in Pakistan and Hotan in China are the top two most-polluted cities, after which Rajasthan's Bhiwadi and Delhi rank in fourth place. At 92.6 micrograms, Delhi's PM 2.5 level is almost 20 times the safe limit.

Six metros ranked.

Kolkata is the most polluted after Delhi. Chennai is relatively the cleanest, with pollution 'just' 5x the WHO's safe level. I The metros where pollution levels rose over the average since 2017 are Hyderabad and Bengaluru.

World's most polluted capital.

The world's most polluted capital goes to Chad's N'Djamena, while New Delhi is ranked second. But the infamous difference in pollution levels is a miniscule 0.6 micrograms of PM 2.5. Also worth noting is that N'Djamena's population is less than a million while New Delhi's population is over four million.

Delhi's next-door towns of Gurugram, Noida, Ghaziabad and Faridabad declined in pollution levels. The highest, a 34 per cent decline in Gurugram and the lowest decline 21 percent in Faridabad, compared to the average PM 2.5 levels reported in previous years. Delhi's has dipped barely below 8 percent.

But the actual levels of pollution in these cities are far higher than the Indian average. While Ghaziabad's PM 2.5 average for 2022 is over 88 micrograms, Gurugram's is 70.

Double digit decline in pollution levels.

As many as 31 cities have seen a double-digit percentage decline in pollution levels. Of these, 10 are in Uttar Pradesh and seven in Haryana. The biggest fall has been in the Taj Mahal city, Agra, by 55 per cent. The average PM 2.5 between 2017-21 was 85 micrograms and in 2022 this was just 38 micrograms per cubic meter.

On the flip side, as many as 38 cities and towns have seen a rise in pollution compared to an average of previous years.

India, Delhi

[Researchers Solve Mystery of Extreme Nighttime Pollution in New Delhi](#)

Laboratory Equipment

... capital due to the frequent burning of plastics and other materials. ... living in the Indo-Gangetic Plain, wood burning is common practice.

[Grap enforced only in Delhi-NCR: Report - Hindustan Times](#)

Hindustan Times

PM 2.5 is fine, inhalable particulate matter with a diameter of 2.5 microns. Construction sites, unpaved roads, fields, and smokestacks or fires, ...

[India's Air Quality Seven Times Worse Than WHO Standards, Delhi Second Most Polluted Indian City](#)

The Logical Indian

Biwadi reported an annual Particulate Matter 2.5 (PM2.5) level of 92.7, making it the most polluted in 2022. This report comes across despite ...

[Strange chemical process behind Delhi's unique extreme night-time smog discovered](#)

Yahoo News Singapore

Citing the example of Beijing, they said gases from emissions like traffic and wood burning in the Chinese capital react in the atmosphere during the ...

Japan, European Union and United Kingdom

RAWSEP View: Biomass subsidies continue for Japan, the European Union and the United Kingdom, because of loopholes. Partial life cycle is counted instead of full life cycle of replacement of burned wood with living trees, which can take centuries. Emissions from biomass plants are not measured at the stacks. Biomass burning is counted as zero carbon in order to help nations achieve their climate goals, while biomass CO2 emissions that increase climate change are ignored. Japan can look at data, and must disclose data, on Biomass CO2 emissions, but cannot count them as part of Japan's climate goals.

How could this problem be solved? By recognizing what the loopholes are that allow governments like Japan, countries of Europe and the United Kingdom to continue to pollute with PM2.5 from biomass (wood) burning. These loopholes result in nations not making any real carbon savings, despite meeting "climate goals" on paper.

Loopholes in Japan.

Life Cycle Greenhouse Gas Emissions counted for Biomass Power Plants are partial. Starting April 2023, Japan only discloses Life Cycle emissions. Japan does count, and must now disclose to the public, PM2.5 emissions from, but does not require reduction of PM2.5 emissions from, the stacks of biomass burning plants. Japan grandfathers in biomass burning plants started before a certain date.

Loopholes in the European Union.

Life Cycle Greenhouse Gas Emissions counted for Biomass Power Plants are partial. The European Union only counts Partial Life Cycle emissions. The European Union doesn't count PM2.5 emissions from the stacks of biomass burning plants. The European Union grandfathers in biomass burning plants started before a certain date. "The new EU standard will do nothing to constrain wood pellet imports, even those from North America with maximal transport emissions,"

Loopholes in the United Kingdom.

Life Cycle Greenhouse Gas Emissions counted for Biomass Power Plants are partial. The United Kingdom only counts Partial Life Cycle emissions. The United Kingdom doesn't count PM2.5 emissions from the stacks of biomass burning plants. The United Kingdom grandfathers in biomass burning plants built before a certain date. "The U.K. PM2.5 standard is better because it appears to be low enough that it disqualifies [imported wood] pellets." but the U.K. standard does not apply to biomass power plants built before 2021. This loophole includes Drax Power Station, which Partnership for Policy Integrity (PFPI) called U K PM2.5 "chief offender."

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The solution is to count the entire Life Cycle of Greenhouse Gas emissions, with no loopholes.

National greenhouse gas standards are just one way to calculate and reduce emissions from biomass. [Greenhouse Gas Protocol](#), a framework to measure emissions in both the public and private sectors, which many companies directly or

indirectly refer to when calculating their emissions, as another tool to help **reveal the full climate impacts of burning forest biomass for energy**. The protocol recommends the disclosure of **biogenic, for example., smokestack, emissions**. How to solve the problem of PM2.5 emissions above safe levels and PM2.5 emissions that are real but are not counted in each nation's or area's "Paper Tiger" Climate Goals?

Count Biomass (wood) burning PM2.5 emissions the same as Fossil Fuel PM2.5 emissions in each nation's or area's Climate Goals. In that way, count PM2.5 emissions at the stacks of Biomass (wood) burning plants. End grandfathering in of Biomass (wood) burning plants which began earlier than the past few years. Macro problem solved. Then on to the micro, hyper-localized problem of Residential wood burning PM2.5 emissions that affect the health and lives of near neighbors. Use hyper-localized PurpleAir PM2.5 monitors in the yards of near neighbors of residential wood burners to detect and put on online maps the historical data of levels above EPA safe limits of PM2.5, and with laws against PM2.5 pollution using PM2.5 monitors rather than ineffective certification of wood stoves. Shut down residential wood burning, wood stove by wood stove in each hyper-localized area in which they pollute, using PurpleAir PM2.5 data as evidence of pollution above EPA PM2.5 safe limits.

[Japan, EU, UK biomass emissions standards fall short, full of loopholes: Critics - Mongabay](#)

Mongabay

Imported wood pellets in the U.K. waiting to be burned at Drax, a former coal burning power plant converted to forest biomass. Image by DECCgovuk via ...Mongabay Series: [Covering Climate Now](#), [Covering the Commons](#), [Planetary Boundaries](#)

Japan, EU & UK biomass emissions standards fall short and are full of loopholes, critics say

Excerpt

A global biomass boom continues unabated with Japan, the European Union and United Kingdom among those governments providing large subsidies for the burning of wood to make energy.

All three governments have developed life cycle greenhouse gas emission standards for biomass power plants, but forest advocates say those standards rely on multiple loopholes to avoid any real carbon savings.

Those loopholes include **not counting carbon discharged from power plant smokestacks**, the biggest source of emissions in the **biomass** life cycle, while **continuing to erroneously count biomass as carbon neutral**, according to industry critics.

Another loophole **grandfathers in existing biomass power plants**, not requiring them to meet new greenhouse gas life cycle emission standards and, in Japan's case, asking those plants to count but not reduce emissions.

Starting this April, Japan will implement a new life cycle greenhouse gas emission standard for biomass power plants supported by its feed-in tariff subsidy for renewable energy. Designed to ensure that forest biomass usage actually reduces carbon emissions compared with fossil fuels, Japan's new standard is similar to those already implemented by fellow forest biomass users like the United Kingdom and European Union.

However, forest advocates warn that all three standards contain **major loopholes** and therefore aren't doing enough to reduce emissions: They **do not apply to biomass plants approved before a certain date**, **nor do they count** the largest source of forest biomass emissions: the CO2 released when **wood is burned**.

Although **biomass power plant smokestack emissions are counted as zero** under international carbon accounting rules, [scientists have shown](#) that forest **biomass releases more carbon per unit of energy than that produced by coal**. The "life cycle" greenhouse gas standards should more accurately be called "partial life cycle" standards, say forest advocates.

In Japan, for example, wood pellets imported from Canada — Japan's second-largest wood pellet supplier — release just 60 grams of CO2 equivalent per megajoule (g CO2/MJe) from production, harvesting and shipping, but almost 450 g CO2/MJe across their **whole life cycle**, according to a document prepared by the Japanese nonprofit Biomass Industrial Society Network that was shared with Mongabay. The **vast majority of emissions come when the wood pellets are burned**. Despite this fact, nations **continue counting biomass as a carbon neutral fuel**.

A biomass plant in Okinawa prefecture, Japan. Japan is implementing a partial life cycle greenhouse gas emission standard from April 2023 onward for biomass plants supported by its feed-in tariff renewable energy subsidy.

A 2021 study, [previously reported](#) by Mongabay, from the U.K. policy institute Chatham House and the U.S.-based Woodwell Climate Research Center found that full life cycle emissions for wood pellets — encompassing production, transportation and burning — would account for 2.8-3.6% of the U.K.'s total greenhouse gas emissions in 2019; those emissions increase global warming but are **unacknowledged due to an international carbon accounting rule loophole**. According to the same [study](#), although energy-related emissions across the former EU28 fell by 26% between 1990 and 2019, **"if emissions from biomass of all types are included, the reduction is just 15%."** Although forest biomass does not

account for the whole 11% discrepancy, the study illustrates the scale of biomass emissions, first and foremost at the smokestack.

A faulty life cycle standard

Although forest advocates see Japan's new partial life cycle standard as a step in the right direction, they are skeptical of its efficacy. The Japanese standard, for example, only requires existing biomass plants to disclose, rather than actually limit, their partial life cycle emissions.

"I think it's positive that Japan is looking into how to account for emissions from biomass. Unfortunately, the actions taken to date are woefully insufficient and aren't going to do anything meaningful to actually limit those emissions," said the Japan director of the environmental nonprofit Mighty Earth,

"Just counting or reporting is nice, but climate change doesn't care about your accounting," Smith added. "The important thing is actually reducing emissions in the near term." Biomass burned to make energy can only truly be classified carbon neutral if measured in the long term — the decades it takes for a carbon-storing tree that is burned to be replaced by an adult tree.

Disclosing partial life cycle emissions is "better than nothing, because it will put some pressure on [biomass users]," said a member of the Japanese nonprofit Global Environmental Forum. But even that emission disclosure has a loophole: "The biggest problem with biomass is that the smokestack emissions are counted as zero."

This carbon accounting problem is not limited to Japan. Mary Booth, director of the Partnership for Policy Integrity, wrote in an email to Mongabay that the EU's biomass standard ignores "the biggest source of emissions — the CO₂ emitted by burning the fuel itself." The EU standard also "falls short of what the [biomass] industry is already achieving," meaning the current rules won't drive further reductions in emissions from harvesting, processing and shipping either. "The U.K. standard is better," Booth continued, "because it appears to be low enough that it disqualifies [imported wood] pellets." However, she highlighted that the U.K. standard does not apply to biomass power plants built before 2021.

Biomass life cycle standards leave out smokestack emissions

The EU's partial biomass life cycle standard compares emissions from harvesting, manufacturing and transporting biomass with a standardized fossil fuel smokestack emission value, in this case 183 g CO₂/MJe for electricity generated. As laid out in its Renewable Energy Directive (RED II), biomass plants must reduce emissions by "at least" 70% at plants starting operation from 2021, and 80% at plants starting operation in 2026.

However, wood pellet imports to Europe are already able to achieve even the lower target. "The new EU standard will do nothing to constrain wood pellet imports, even those from North America with maximal transport emissions," wrote Booth and Ben Mitchell in their 2020 report "[Paper Tiger](#)."

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The authors also warned about European Union smokestack emissions: "As the [EU's] GHG criteria do not count emissions from burning the biomass itself, they are of no utility in determining the actual atmospheric CO₂ impact of burning forest biomass."

Unlike the EU, the U.K.'s partial life cycle emission standard, introduced in September 2018, is strict enough, in effect, to prohibit new wood pellet imports, a major source of the U.K.'s forest biomass fuel. The new standard of 8.1 g-CO₂/MJe was a major drop from the previous 55.6 g-CO₂/MJe. PFPI's [calculations](#) found that no wood pellets could meet the standard.

However, the U.K.'s latest standard applies only to biomass plants built between 2021 and 2026, meaning its prohibitive restrictions do not apply to existing plants. This includes Drax Power Station, which PFPI called "the chief offender." Drax, the nation's biggest power plant and "biggest carbon emitter," according to critics, is solely fueled by wood pellets and though highly profitable, relies on large government subsidies to thrive, as do biomass plants globally.

Drax, and two other U.K. biomass plants already in the pipeline when the new standard was introduced in 2018, were set to consume roughly 3 million metric tons of imported pellets per year, according to PFPI's calculations at the time. Under Japan's soon-to-be implemented standard, new biomass plants must be able to reduce their partial life cycle emissions compared with a standardized fossil fuel smokestack emission value by 50% from 2023 onward, and by 70% from 2030. But although existing biomass plants in Japan are required to calculate and disclose their partial life cycle emissions from now on, they aren't obligated to meet the reduction targets.

Japan based its calculation methods on the EU's standard. However, while PFPI found that the EU standard still allowed wood pellet imports, calculations by Japanese nonprofit Biomass Industrial Society Network showed that wood pellets imported to Japan from the U.S., Canada and Vietnam failed to clear the 70% reduction target.

"The most important thing is not the specifics of how the [partial life cycle] emissions are calculated, but who the standard applies to," Iinuma said. In Japan, "it only applies to projects newly approved for the feed-in tariff subsidy, but, since 2018, when the subsidy was changed from a flat rate to a bidding system, there have been almost no new proposed plants."

Although Japan's wood pellet imports continue to rise dramatically, most are feeding already approved biomass plants that are gradually coming online. In Iinuma's view, Japan has created "a standard that no one has to follow."

The U.K.'s Drax power station, fueled solely by wood from the U.S. and Canada. Unlike the burning of coal, wood burning is counted as carbon neutral, helping the U.K., EU and Japan meet their net zero emissions targets, even as the biomass burned adds significant amounts of CO₂ to the atmosphere.

Despite the short-term energy security it provides, forest biomass usage in the U.K. continues to face criticism from both climate advocates and members of the U.K. government.

National greenhouse gas standards are just one way to calculate and reduce emissions from biomass. Mighty Earth's Smith pointed to the Greenhouse Gas Protocol, a framework to measure emissions in both the public and private sectors, which many companies directly or indirectly refer to when calculating their emissions, as another tool to help reveal the full climate impacts of burning forest biomass for energy. The protocol recommends the disclosure of biogenic, e.g., smokestack, emissions.

"For a life cycle greenhouse gas standard to be meaningful, it really needs to be strict," Smith concluded. "It needs to be in line with keeping global temperature increases to 1.5 degrees Celsius. That's the whole thing about it — is it in line with a livable future?"

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