

Episodes 55 R thru W, March 15, 2023

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).

Episode 55 R thru W March 15, 2023, Ep 55R California, Barrow County and Oakland 1 of 2 Ep 55S Oakland 2 of 2, St. Louis, MO to Texas Ep 55T Canada, British Columbia, Valemount to London 1 of 2 Ep 55U a text and audio, London 2 of 2 Ep 55U b pictures and audio, London 2 of 2 Ep 55V Drax in U K, Sweden 1 of 2 Ep 55W Sweden 2 of 2, Asia, Health Effects of PM2.5

There is an old joke (from the 1960's): I love the smell of napalm in the mornings. Liking the smell of woodsmoke is cited as a reason for residential wood burning. That reason for burning wood is viewed as laughable by Residents Against Wood Smoke Emission Particulates (RAWSEP) when they are in a charitable mood. It is also a reason that reveals that burning wood is just done for aesthetics, ambience, or as a hobby, by affluent people who can afford to heat their homes by an alternate means, or by people who could heat their homes with alternate means with the help of government subsidies such as the Low Income Home Energy Assistance Program (L I H E A P). There are people who say they love the smell of cigarette smoke. Those people could be tragically addicted to nicotine, or addicted to the little ceremonies of taking a cigarette out of a pack and mesmerized by the sight of the flame of a cigarette lighter. They may call the little tasks of lighting a cigarette a tradition. There are traditions, and there are traditions. Some things falsely labeled traditions do not honor any person, place or thing that has gone before, but merely ape foolish and harmful behaviors of the past.

United States

RAWSEP View: This study is flawed because it provides only generalized information. Hyper-localized monitors of PM2.5 pollution, particulate matter of 2.5 micrometer size (wood smoke is 90% PM2.5) shows where residential wood burning PM2.5 is emitted which exceeds Environmental Protection Agency (E P A) safe limits over extended periods of time, affecting the health and life of near neighbors of residential wood burners. This Lancet study shows data from monitors which show non-localized data, only gross data, that prove that PM2.5 exists, but does not pinpoint where the emissions come from. Using PM2.5 monitors in yards of near neighbors of residential wood burners will pinpoint where the emissions are coming from. This use of each PurpleAir PM2.5 monitor allows download of historical PM2.5 data from overnight and weekend residential wood burning emissions, during normal working hours of governmental officials, allowing for regulation and shutdown of residential wood burning without having to enter residences of wood burners, nor check certification of wood burning equipment. A recent report of the Office of the Inspector General (O I G), the watchdog of the E P A, stated that methods of U S certification of wood stoves allow highly polluting wood stoves to continue to be sold in the United States, with a label from the U S Government saying the polluting wood stoves are certified. There are also alternate forms of heating developed recently such as electric-run heat pumps that can operate at temperatures well below freezing, and the government-run program Low Income Home Energy Assistance Program (L I H E A P) exists to help low-income people pay for moving from wood heating to alternative forms of heating such as heat pumps.

[Study into global daily air pollution shows almost nowhere on ...](#)

[Science Daily](#)

<https://www.sciencedaily.com › releases › 2023/03>

Study of daily ambient fine particulate matter (PM2.5) has found that only 0.001% of the global population are exposed to WHO safe levels. Date: ...

United States, Lancet Journal

Air Pollution Study Finds Almost Nowhere Safe on Earth. A groundbreaking study on global particulate matter levels. In a first-of-its-kind study, researchers found that just .0001% of the global population is exposed to the World Health Organization's recommended safe levels of daily ambient fine particulate matter (PM2.5). The study, published in Lancet Planetary Health on March 6, [acknowledged](#) how the lack of pollution monitoring stations has made collecting accurate data on global PM2.5 exposure challenging in the past. Global monitor station distribution and mean annual PM2.5 concentration over two decades (2000–19). Lancet Planetary Health team developed global grid cells that focused on areas above 15 µg/m³ (micrograms per cubic meter air), which is considered the recommended 24-hour limit by the

[2021 WHO guidelines](#). The study discovered that the annual average PM2.5 level worldwide from 2000 to 2019 was 32.8 $\mu\text{g}/\text{m}^3$, with the highest concentrations distributed in Eastern Asia (50.0 $\mu\text{g}/\text{m}^3$), Southern Asia (37.2 $\mu\text{g}/\text{m}^3$), and northern Africa (30.1 $\mu\text{g}/\text{m}^3$). Australia and New Zealand had the lowest annual concentrations with 8.5 $\mu\text{g}/\text{m}^3$. It was also found that daily levels in Europe and North America have decreased, but levels have risen for Southern Asia, Australia, New Zealand, Central America, and the Caribbean. Notably, 0.001 percent of the world's population and 0.18 percent of the global land area was exposed to an annual exposure lower than the recommended annual limit by the WHO of 5 $\mu\text{g}/\text{m}^3$. Problems of Particulate Matter. PM2.5 are particles in the air that measure less than 2.5 micrometers in diameter that reduce visibility and cause the air to appear hazy. It comes from outdoor sources such as vehicle exhausts, power plants, and **anything that involves burning fuels**. Some indoor activities can also produce PM2.5, such as **cooking, operating fireplaces**, and tobacco smoke. The particles can travel deeply into the respiratory system and can cause short-term health effects like eye, nose, throat, and lung irritation, coughing, sneezing, and shortness of breath. PM2.5 can worsen medical conditions like asthma and heart disease. Long-term exposure to it has also been linked with higher rates of chronic bronchitis and increased mortality from lung cancer and heart disease. Furthermore, one study [found](#) that ambient air pollution, as annual PM2.5, accounted for 3.1 million deaths in 2010. Another [study](#) discovered that exposure to PM2.5 decreased the life expectancy of the population in European Union countries by about 8.6 months on average.

California, Barrow County

RAWSEP View: A wood burning stove was being used to heat a Barrow County home, and accidentally there was an explosion probably involving a large propane tank inside the house used for cooking.

['Screaming for their lives:' 3 killed, 4 injured after Barrow County home explodes - WSB-TV](#)

WSB-TV

She said her father was seriously burned in the explosion. ... The occupants also had a wood burning stove approximately 10-15 feet away, ...

Excerpt

Barrow County Emergency Services said the cause of the fire has now been listed as accidental. One of the occupants was using a large propane tank, typically used to supply a RV inside of the home. It was being used to supply a single propane cooking burner inside. "I heard that they were cooking," Key said. "They didn't have power for a few years." Family members have been sifting through the pile of rubble looking for any keepsakes of their loved ones. The tank and burner were not compatible due to coupling sizes, hose sizes, and proper fuel dispensing/pressure regulator, which led to a major leak inside. The occupants also had a wood burning stove approximately 10-15 feet away, which they were using to warm the home. Investigators said due to the leaking of combustible flammable liquids along with the proper heat and ignition source being supplied, this combination resulted in an explosion inside the residence.

California, Oakland

PM2.5 linked to Cardiovascular Events

[Long-Term PM_{2.5} Exposure Linked to Increased Risk for Cardiovascular Events | foxbangor.com](#)

WVII

MONDAY, March 13, 2023 (HealthDay News) -- Long-term exposure to fine particulate matter (PM2.5) is associated with an increased risk for ...

Episode 55 S

Excerpt

MONDAY, March 13, 2023 (HealthDay News) -- Long-term exposure to fine particulate matter (PM2.5) is associated with an increased risk for cardiovascular events, according to a study published online Feb. 24 in JAMA Network Open. Stacey E. Alexeeff, Ph.D., from the Kaiser Permanente Division of Research in Oakland, California, and colleagues examined the associations between long-term PM2.5 air pollution and cardiovascular events in a retrospective cohort

study involving adults in the Kaiser Permanente Northern California integrated health care system during 2007 to 2016 and followed for up to 10 years.

The study cohort included 3.7 million adults. The researchers found that a 10- $\mu\text{g}/\text{m}^3$ increase in one-year mean PM2.5 was associated with a 12, 21, and 8 percent increased risk for incident acute myocardial infarction (AMI), ischemic heart disease (IHD) mortality, and cardiovascular disease mortality, respectively. Compared with low concentrations ($<8 \mu\text{g}/\text{m}^3$), exposure to PM2.5 at moderate concentrations (10.0 to 11.9 $\mu\text{g}/\text{m}^3$) was associated with increased risks for incident AMI and IHD mortality (6 and 7 percent, respectively).

Missouri, St. Louis

RAWSEP View: This article focuses on the racial injustice, environmental injustice, of PM2.5 pollution in St. Louis, Missouri, based on a United States map produced by the Guardian. Because of the hyper-localization of wood smoke emissions effects on near neighbors of wood burners, unless the PM2.5 monitors are located in the yards of near neighbors, PM2.5 pollution from residential wood burning can be overlooked. This article does not mention residential wood burning as a source of PM2.5 pollution in St. Louis, but PM2.5 pollution from wood burning probably does exist, but is not measured by the monitors that are placed too far from the wood burning sources of pollution to catch the relevant data. The line in the article most relevant to residential wood burning producing PM2.5 particulate pollution is "Aside from a few pockets of pollution in white-dominated neighborhoods of south St. Louis city and county, most of the polluted areas are in the north as well as in East St. Louis and Granite City, with 90% or more of those populations consisting of people of color, the Guardian reported." Those pockets of pollution in white dominated neighborhoods may well be from residential wood burning, since residential wood burning is marketed to affluent consumers and many residential wood burners are affluent and live away from industrial pollution sources, but produce their own pollution, that may even affect lower income neighbors, through the misguided use by the affluent of wood burning as a hobby, or for ambience.

At the recent February 21st, 22nd and 23rd of February 2023 public hearings about lowering the PM2.5 safe limits set by the Environmental Protection Agency from 12 micrograms per meter cubed annually and 35 micrograms per meter cubed daily, around 250 commenters asked for the safe limit to be lowered to 8 micrograms per meter cubed annually and 25 micrograms per meter cubed daily. A handful of commenters over the three days who worked for businesses, fearful of regulation's effect on their bottom line, asked that safe limits remain the same. The tone of this paper's editorial was that St. Louis was at the mercy of the Federal Government. If individual citizens, including citizen-scientists who have their own PM2.5 monitors to catch hyper-localized readings of PM2.5 emissions of their neighbor's residential wood burning, readings taken 24 hours a day and 7 days a week, comment at hearings such as the E P A recently held, their voices are more likely to be heard in the discussion about steps that can be taken to curb each individual's anthropogenic (human-caused) mistake of burning wood, mistakenly adding to PM2.5 emissions. Curbing air pollution by regulating away residential wood burning in our neighborhoods, instead of merely a wringing of hands or a holding of breath, is a solution not mentioned in this editorial below.

[Editorial: St. Louis area ranks among the worst in America for airborne particulates](#)

St. Louis Post-Dispatch

The University of Washington study cited is based on measurements of airborne fine particulate matter, known as PM 2.5.

RAWSEP edited the excerpt for brevity and clarity

St. Louis ranks among the 10 worst metropolitan areas in the country for fine-particle air pollution, according to a recent study. A [new interactive map](#) of the United States depicting the most dangerous air-pollution levels focuses attention on one particularly troubling aspect: the most heavily polluted air tends to be found in neighborhoods dominated by Black and Hispanic residents.

When people talk about environmental racism, this is what they mean: urban-planning decisions from long ago, but never corrected, that established low-income housing in close proximity to industrial and heavy-commercial zones. In the case of St. Louis, the pollutants people are breathing appear to result from being downwind from steel mills and other heavy industry across the river in East St. Louis, along with the area's large [coal-burning power plants](#).

The Guardian compiled an interactive map of the entire United States using data from a University of Washington study. Several areas in and around St. Louis have reached such hazardous levels of air pollution that they are close to meriting intervention by the Environmental Protection Agency.

Aside from a few pockets of pollution in white-dominated neighborhoods of south St. Louis city and county, most of the polluted areas are in the north as well as in East St. Louis and Granite City — with 90% or more of those populations consisting of people of color, the Guardian reported.

The University of Washington study cited is based on measurements of airborne fine particulate matter, known as PM 2.5. The World Health Organization regards levels around 5 micrograms of PM 2.5 per cubic meter as safe, while others say anything below 12 is acceptable. The critical areas in and around St. Louis measured right at the cusp — 11.5 to 11.9. Numbers were averaged from samples collected between 2011 and 2015, but researchers say such numbers tend to remain steady over time without dramatic action to shut down the major polluters.

St. Louisans are pretty much at the mercy of state and federal regulators for action against polluters, which means residents shouldn't hold their breath. On second thought

<https://www.youtube.com/watch?v=s9B5b51z7pY> February 21, 2023, Recording, 8 hours

<https://www.youtube.com/watch?v=crzJ1g8aCKI> February 22, 2023, Recording, 8 hours

<https://www.youtube.com/watch?v=GlfHXXeiVew> February 23, 2023, Recording, 8 hours

Youtube recordings of EPA Testimony about PM2.5 on 2/21/2023, 2/22/2023 and 2/23/2023 CST 10 AM to 6 PM

Ohio, Cleveland

[State officials need to avoid rosy assessments about East Palestine before the evidence is in](#)

Cleveland.com

... in this area where grape-growing and other crops are planted were concerned by the forest fires and the wood smoke's effect on their crops.

Oregon, Klamath County

[Spring open burn window announced for Klamath County Air Quality Zone | News](#)

Herald and News

No trash, plastic, rubber, tar, petroleum products, or treated or painted wood may be burned. 5. The use of burn barrels is prohibited.

Texas, Alton

[Employees burning wood in container sparks warehouse fire in Alton - KRGV](#)

KRGV

Alton fire Chief John Salinas said warehouse employees were burning wood inside a container. They believe that fire got out of their control.

Employees burning wood in container sparks warehouse fire in Alton. Alton fire officials said they now know what caused a junkyard fire behind Cuevas Wholesale warehouse on Friday Alton fire Chief John Salinas said warehouse employees were burning wood inside a container. They believe that fire got out of their control. It ended up burning five acres and damaging property, but no injuries were reported.

Episode 55 T

Canada, British Columbia, Valemount

RAWSEP View: Currently, solving the problem of ending the pollution of a neighborhood by a wood burning stove is a long process. The sentence that concerns RAWSEP is that "Councillor Blanchette again expressed great concern regarding the wood burning appliance and safety."

[Village mulls action on illegal backyard dwelling - The Rocky Mountain Goat](#)

The Rocky Mountain Goat

... due to the installation of a wood burning appliance within an accessory building and the occupancy of the unit without an occupancy permit, ...

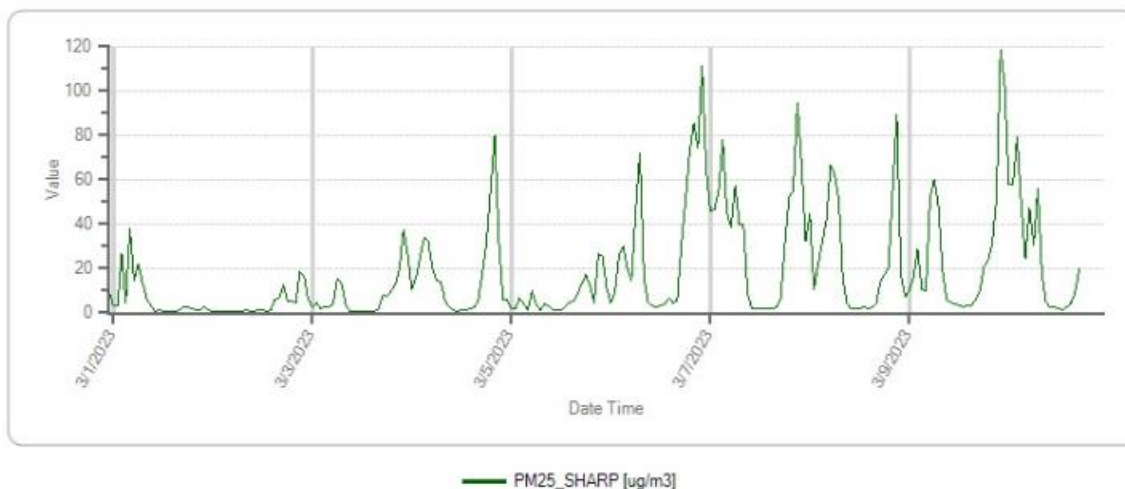
Excerpt

Village mulls action on illegal backyard dwelling.

During the Valemount Council meeting on February 28, Council sought to place sanctions via a “notice on title” for a property due to the installation of a wood burning appliance within an accessory building and the occupancy of the unit without an occupancy permit, contrary to both the BC Building Code, and village bylaws. The Building Inspector confirmed the building is still occupied. Staff will look into other options besides the fines that have been issued. This issue has been going on since Aug. 2021. A council member asked why the Royal Canadian Mounted Police (RCMP) have not gotten involved and why the person still lives there. She said there has been no payment for the fines that have been issued, and she is concerned it is a dangerous situation for the tenant as the structure livability is unknown. The RCMP have not been involved. The Councillor Blanchette moved to include contacting the RCMP immediately to find out what they can do to have the tenant removed. Another Councillor said, “Unfortunately, the property owner is making more in rent than we are charging in fines,” the Mayor said “I think that nobody wins if we go down there with a bulldozer and say “get out.” “It’s winter,” During discussion, it was disclosed that the property owner is not in the community, that they live in the Lower Mainland. Communication to the owner has been through letters. A letter was sent on January 19, 2023, summarizing the several violations that have not been rectified. A stop work order was issued for unauthorized alterations and structural repairs in August 2021. In January 2022 a bylaw violation was given due to the unauthorized installation of a wood burning appliance. March 2022 a final notice was given regarding the bylaw violations. And in December 2022 another letter inviting the property owner to be heard by council or submit comments and information by noon on Jan 10 was sent. However, no response was forthcoming. The letter also stated that there is a fee to have a notice on title removed once it is in place. The letter sent in January contained similar information and gave the property owner another opportunity to be heard by council at the meeting on the 28th, or submit comments and relevant information by noon on Feb 27. Depenau reported that contact was made with the individual on Monday, Feb 27 at 11:50 am. He said that the owner seems to show willingness to comply. They said they are unaware of any previous correspondence regarding the secondary structure, but village staff are not convinced that statement is accurate. By unanimous vote, Council agreed to proceed with placing a notice on title on the property, protecting those with an interest in the property. Councillor Blanchette again expressed great concern regarding the wood burning appliance and safety. However, with the new knowledge that the owner is not on site, she agreed sending the RCMP may not be the best option. Council agreed to determine where jurisdiction lies and then move forward to resolve the issue. “It is hoped that the owner of the property in question will work to reach compliance with the building code and local bylaws,” said Chief Administrative Officer (C A O) Depenau.

Not a good month for air quality in Valemount so far 😞

Station: Valemount Periodic: 3/1/2023 12:00 AM - 3/11/2023 12:00 AM Report Type: AVG



[Air pollution in NSW causes 603 premature deaths and costs \\$4.8bn a year, study finds](#)

The Guardian

Smoke and haze from fires in New South Wales hangs over Sydney Harbour Bridge ... "It's clear that burning wood, petrol and coal is killing us, .

United Kingdom

U K, London

<https://medium.com/the-new-climate/why-the-environmental-movement-has-a-blind-spot-for-wood-burning-73a5d0eb2a6b>

How bad is wood-burning? And why do people do it?

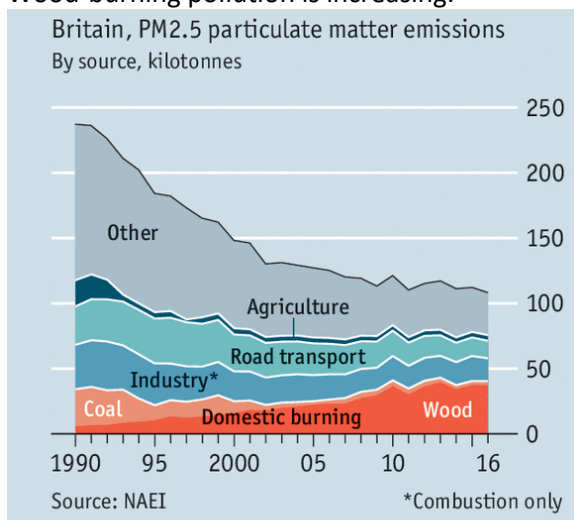
Excerpt edited by RAWSEP for brevity and clarity

As an environmental activist and air quality researcher, I am often confronted by people who burn wood, even other activists. I have even been on [television](#) to argue against wood-burning. With growing awareness of air pollution indoors and in neighborhoods, some have chosen to do away with their wood-burning activities, but others have not. Why is this?

Overall.

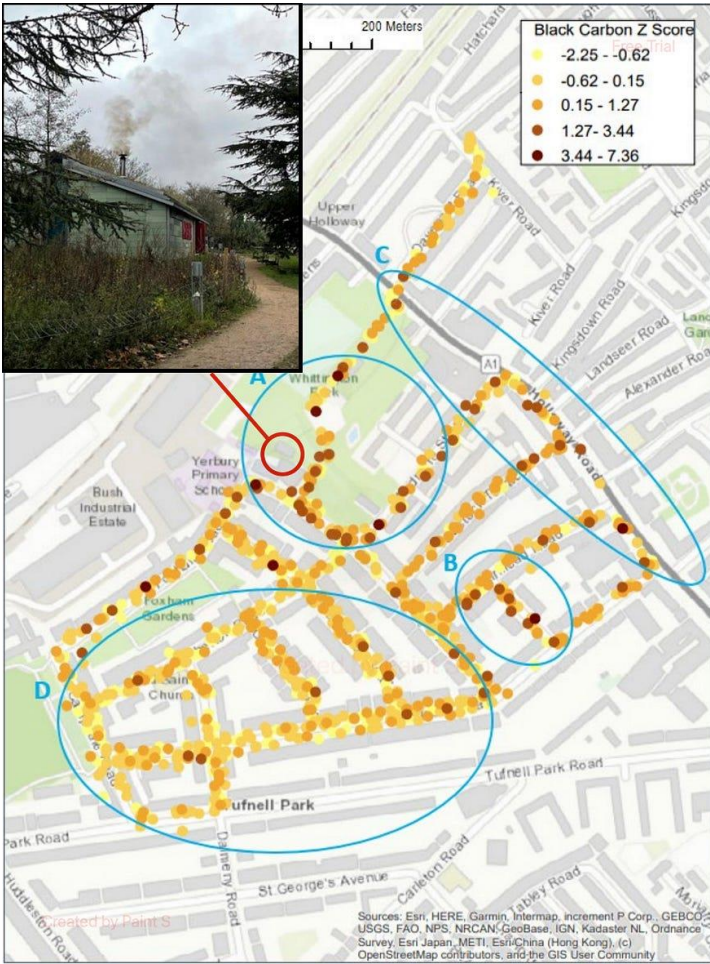
Wood-burning causes around 21% of total PM2.5 air pollution in the UK, and 75% of domestic emissions; between 26,000 and 38,000 people in England die from air pollution every year; experts at Asthma UK and the British Lung Foundation ask people not to burn wood unless they have to; burning wood affects breathing and general health of neighbors who have to suffer the consequences of people's choices; 92% of people who burn wood made their decision based on aesthetics, tradition, supplement, or simply to save money; and alternative forms of heating, such as heat pumps or underfloor heating properly installed, and properly insulating homes must be more widely adopted.

Wood-burning pollution is increasing.



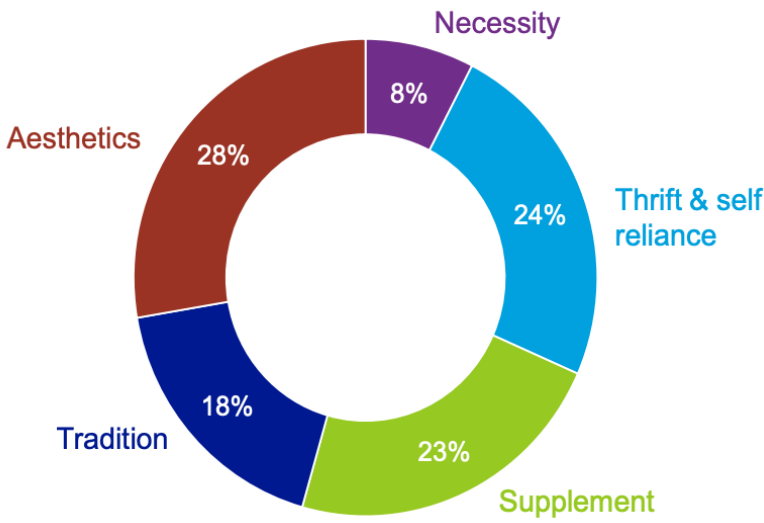
The Economist

One chimney pollutes a street



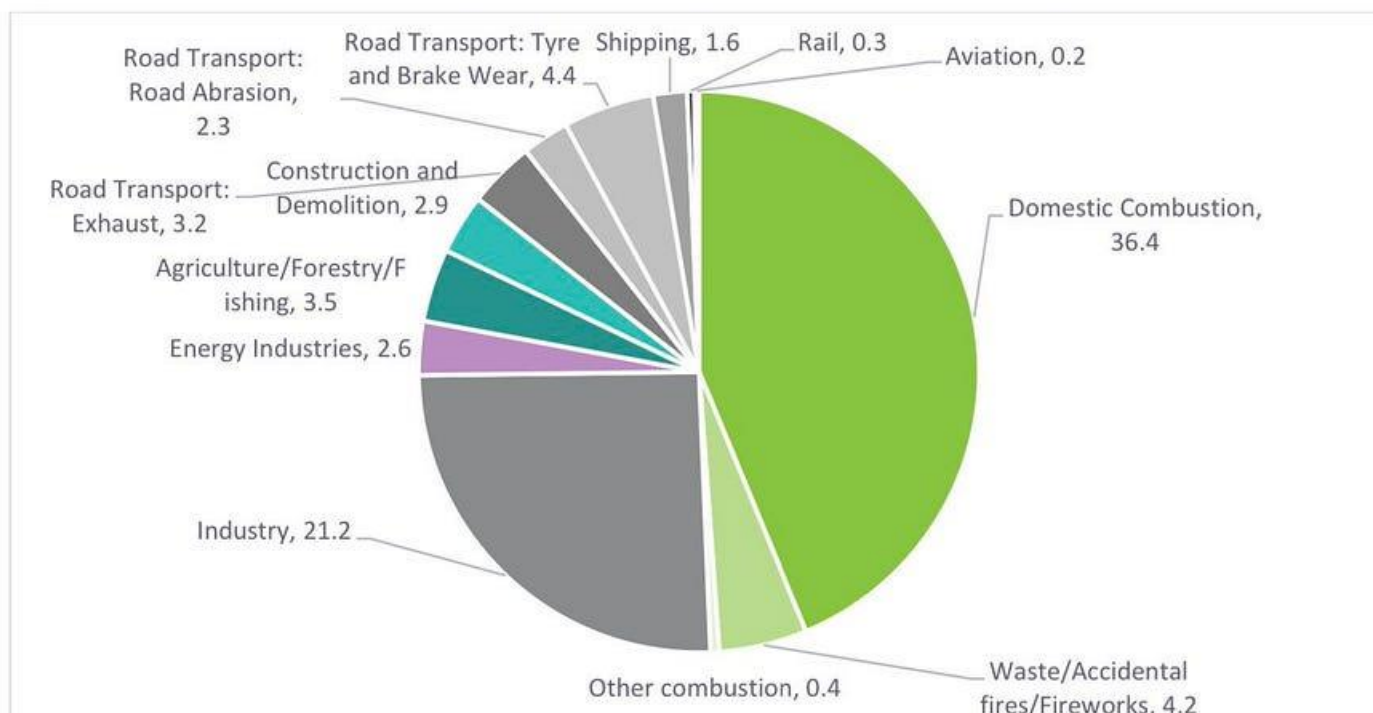
The rich are buying wood burning stoves. Why people in the UK burn wood, results from a [2020 survey](#) of over 46,000 people across the UK

Wood-burning pollutes homes. The rich are buying (wood burning) stoves.



Wood burning pollutes homes

Figure 2-1 Primary sources of PM_{2.5} in England for the year 2018 (kilotonnes)⁴



Even though total PM_{2.5} is decreasing, PM_{2.5} from wood-burning are increasing, effectively replacing the phasing out of coal. [Over 1 million wood stoves were bought between 2010 and 2015](#) and, to justify the investment, wood is often burnt every day. This wood smoke drifts into neighbors' houses so lots of people are exposed. One chimney pollutes a street. Many in the U K seem totally unaware that domestic wood-burning is the largest source of particulate pollution in the UK. Only [8% of the UK's homes burn wood](#), but this [accounts for around 21% of the total PM_{2.5} emissions](#), whereas all traffic on the UK roads [produces 13%](#).

Episode 55 U

This is a growing issue in the UK, where wood-burning contributed to [75% of domestic combustion emissions in 2021](#), up from [70% in 2020, compared with just 3% in 1970](#). A [pilot study](#) in Islington, London was made to find hotspots of air pollution. Scientists carried air quality sensors around a residential area on Friday, Saturday and Sunday evenings, the most popular times for home wood-burning. They found wood-chip boilers and homes burning wood to be responsible for most of the particulate pollution in residential streets. From the Islington pilot study looking at black carbon air pollution in residential areas. Pollution in Zone A was likely from a wood-chip boiler. Zone B was the site of residential wood-burning. Zone C is likely to be from traffic. Zone D had no obvious emissions sources. Wood-burning pollutes homes. Wood-burners [triple the level of harmful pollution particles](#) inside homes and should be sold with a health warning. A [2020 study](#) in Sheffield, UK analyzed data collected every few minutes from pollution monitors in people's homes and in total assessed 260 uses of wood-burners. The results showed the burners were usually lit for about four hours at a time, and during this period the level of harmful particles in homes was three times higher than when stoves were not being used. During those four hours, average particle levels rose to between 27 and 195 $\mu\text{g}/\text{m}^3$. The [World Health Organization guideline](#) for PM_{2.5} is 15 $\mu\text{g}/\text{m}^3$ over 24 hours, and 5 $\mu\text{g}/\text{m}^3$ as a yearly average. The rich are buying stoves. I contacted the Stove Industry Alliance (SIA), who 'promote and explain the benefits, wellbeing and environmental advantages of wood-stoves as heating appliances', to ask about the sales of stoves in the UK. From [a recent press release they issued](#), there were just over 35,000 sales of wood-burning stoves in April-June 2022. This grew to just over 57,000 in July-Sept 2022. Perhaps this was due to rising gas bills, but at around £500 plus installation costs, a wood-burning stove isn't for people who are short of cash. The rise in wood-burning stove purchases are in [affluent households](#) who have alternative sources of heating. The [government reported](#): "Open fires account for 24% of PM_{2.5} emissions from the domestic combustion sector, with wood-burning stoves accounting for 76%". The Stove Industry Alliance [didn't respond to me pointing this out to them](#). No surprises there, as they represent sales of approximately 75–

80% of the UK stove market. Home-style magazines and renovation programs targeted at the most wealthy often show beautifully decorated homes with a wood fire. The richest burn the most wood, the poorest suffer the worst air pollution. A 2020 [report](#) produced for the UK government providing results from a face-to-face survey of 46,000 people across the UK found that almost half of all indoor burners (46%) were from the highest AB social grades. It also showed a breakdown of why people **burn wood**. The greatest reason was ‘socializing and creating a homely atmosphere; it is a lifestyle choice for this affluent and largely English segment who burn least and could be persuaded to burn less or differently’. It stated ‘of those who burned indoors, 21% reported household incomes of over £50,000 per year’. Almost all indoor burners lived in a house (98%) rather than a flat or maisonette, and almost all indoor burners classified themselves as ‘white’ (97%). Only 3% found it ‘very difficult’ to pay for their energy costs.

The UK government uses the minority to avoid bans. The UK government’s [25-year Environmental Improvement Plan](#) released in January 2023 stated “We are not considering a ban on domestic burning in England. The UK government recognizes solid fuel burning as a primary source for heating, hot water and cooking.”. In [January 2021](#), experts at Asthma UK and the British Lung Foundation asked people to use wood-burners only if they had no alternative source of heat. The UK government also [states](#) that wood-burning stoves ‘for a minority may be the sole heat source.’ Rather than supporting this minority of homes with insulation and heat pumps, the UK government chose to use them as an excuse to allow the affluent areas to keep polluting their neighborhoods. Emissions from wood burners result in almost [£1bn in health costs](#) a year and are responsible for nearly [half the cancer risk](#) caused by urban air pollution. Imagine how this financial cost and health burden could be reduced if the government helped those reliant on burning wood to insulate and heat their home in a cleaner way. The UK government’s [own reports](#) show that the South East has the highest concentration of households that burn wood in England, and that they are the [most well connected region of England](#) to gas heating. The South East region contains the [greatest number of Tory voters](#) of all regions in England.

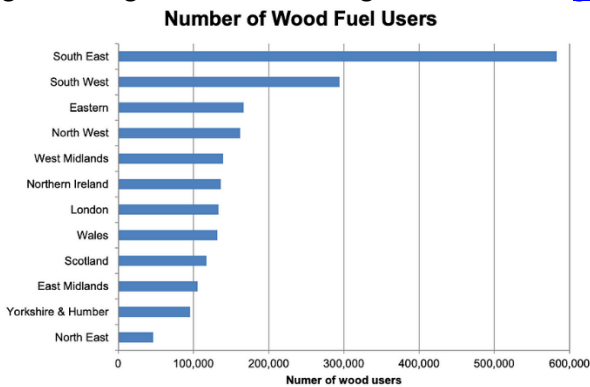
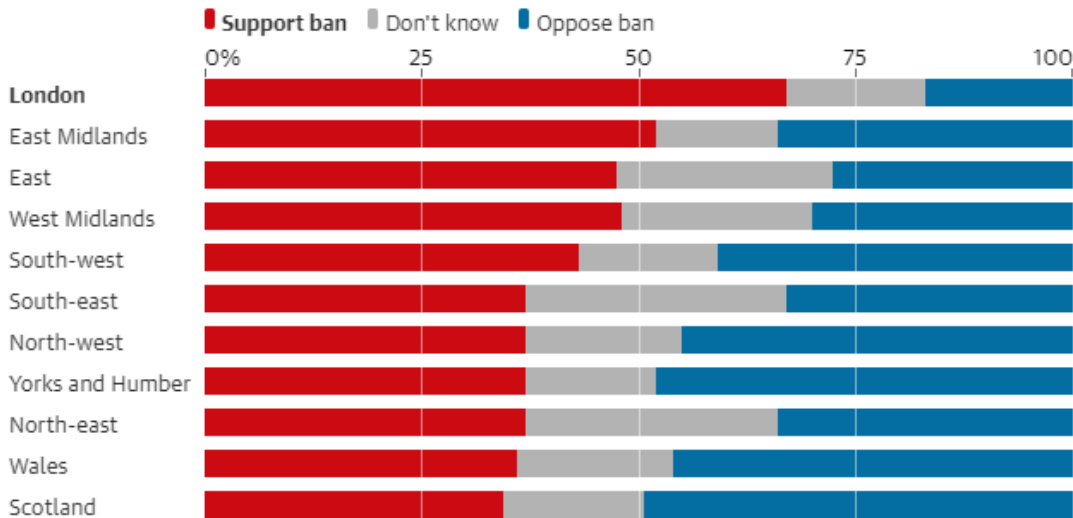


Figure from the UK government’s report ‘[Summary results of the domestic wood use survey](#)’ from 2016, showing the highest number of wood users are in the most affluent region after London and are most well-connected to the gas grid. Most people want wood-burning bans. Most in support, Londoners, and people across the U K over 75 years old. Least in support, people in Scotland and Wales, who are less well connected to the gas network.

From a [report in February 2023 by the Guardian](#) .

Londoners overwhelmingly back a ban on wood burners in urban areas



Guardian graphic. Source: Omnisis

A Guardian survey of 1,258 people in the UK showing their support for banning wood burners in cities, Feb 2023. In fact, the [Mayor of London effectively banned wood burners](#) in new and refurbished homes, where the guidance encourages developers to meet air quality standards by installing solar panels, electric heat pumps, cycle storage and electric vehicle charging. The guidance also requires an overall increase in biodiversity, with the inclusion of green roofs, new trees and hedges and wildlife-friendly landscaping.



A pile of logs (a 'loggery') left in Holland Park, London, with a sign to say that these are for invertebrates, not for burning

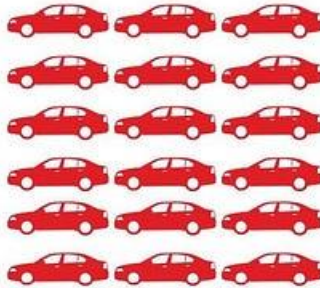
1
Eco-certified
wood stove



Rated at 3.1 gms/hour
of Particulate Matter

=

18
Newer diesel
passenger cars



Rated at 0.17 gms/hour
of Particulate Matter

OR

6
Modern Heavy
Goods Vehicles



Rated at 0.5 gms/hour
of Particulate Matter

Data from: "Potential Air Quality Impacts from Biomass Combustion", Air Quality Expert Group (UK), 2017

Think about a wood-burning stove as an enormous exhaust pipe on top of your house. Image from [here](#).



@CleanAirLondon

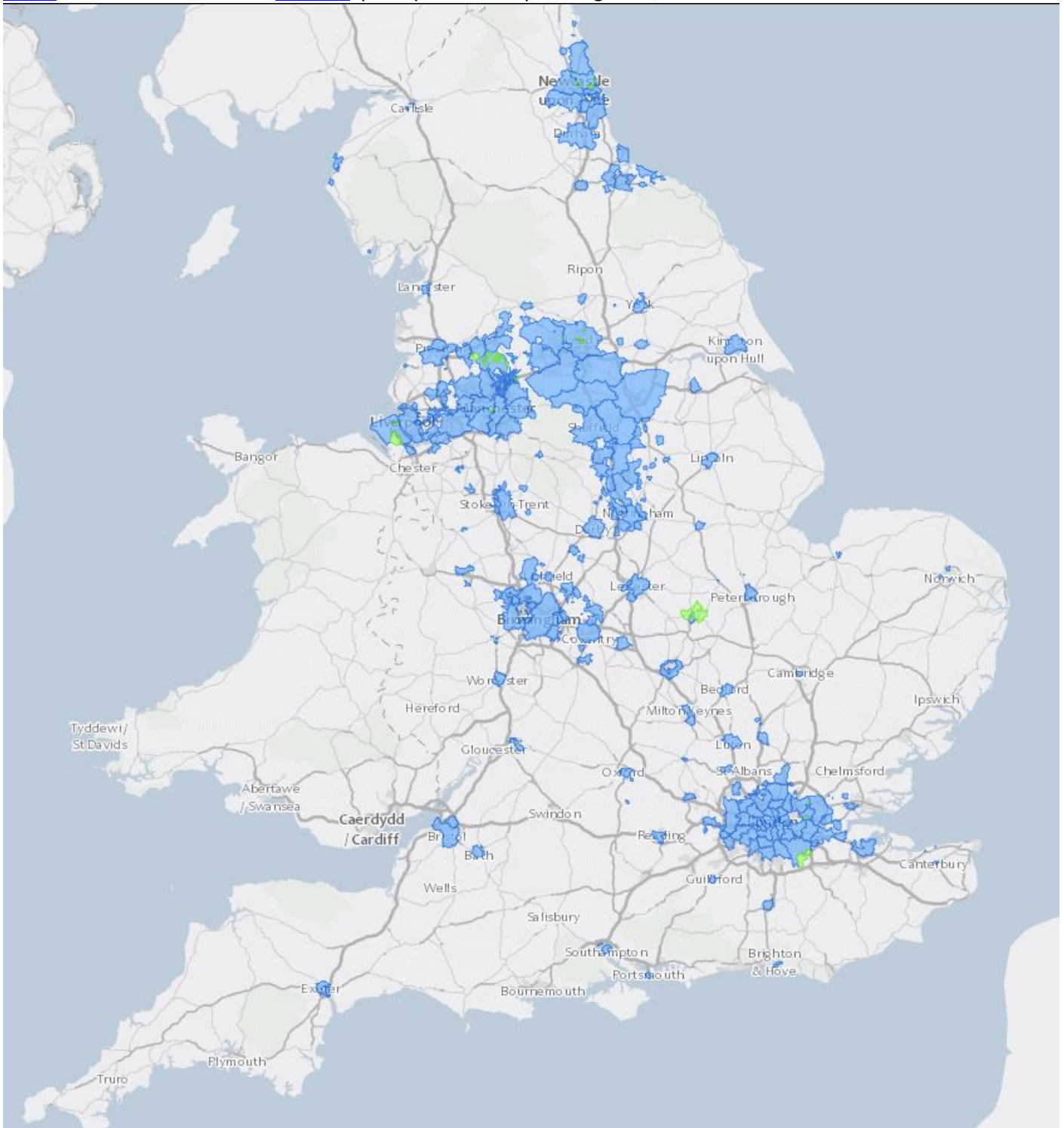
@DaveyCartoons

Davey

The UK government [incentives encourage people to burn wood](#) as a 'renewable heating system', or a 'biomass boiler' under the 'Domestic Renewable Heat Incentive'.

New government guidelines don't make sense. The UK government's [25-year Environmental Improvement Plan](#) released in January 2023 states they will 'Tighten the limits that new stoves in Smoke Control Areas must meet, reducing the limit from 5 grams of smoke per hour to a maximum of 3 grams per hour'. But smaller particles, which have less mass, are more harmful. The particle number should be used in the limit, not the total mass, because total mass has no bearing on how many particles there are. In the same way, 1 kg of apples and 1 kg of sand have the same mass but vastly different numbers. A back-of-the-envelope calculation: 3g of smoke particles that are 2.5 microns = 3400 billion particles. 3g of

smoke particles that are 10 microns = 53 billion particles. Additionally, enforcing such a limit would be incredibly difficult. English councils have issued only [17 fines over six years](#), despite more than 18,000 complaints, as it is difficult and expensive to prove guilt and then take people to court. Smoke control areas are also not ubiquitous. You need to [check if your area](#) is actually included. And even then, you can use [outdoor barbecues, chimineas, fireplaces or pizza ovens](#) in smoke control areas. [Bonfires](#), perhaps the most polluting of all, are allowed in smoke control areas.



Smoke Controlled Areas (in blue) make up [11.9% of England](#), where people and businesses must not (i) emit a substantial amount (?) of smoke from a chimney and (ii) buy or sell unauthorised fuel for use in a smoke control area unless it's used in an ['exempt' appliance](#) emit a substantial amount of smoke from a chimney, buy or sell unauthorised fuel for use in a smoke control area unless it's used in an ['exempt' appliance](#) (appliances which are approved for use in smoke control areas)

Episode 55 V

United Kingdom

U K, London

[It's time to move away from burning wood pellets for our energy needs - City A.M.](#)

City A.M.

Over the past 12 months, nearly five per cent of the UK's energy needs have been met through burning wood pellets. It's time to move away from burning wood pellets for our energy needs

RAWSEP agrees with the conclusion of this article "With such a vast pipeline of wind and solar power, Drax (wood pellet fueled power plant) is a headache that frankly the (United Kingdom) government could live without. Tackling planning laws, development logjams and supply chain challenges that are impeding on the UK's greener future is a far more fruitful use of the government's time and taxpayer money than propping up an energy source that belongs in the past." Biomass burning is essentially wood burning and its emissions resemble residential wood burning PM2.5 emissions, which are greater than coal burning PM2.5 emissions.

Excerpt

Over the past 12 months, nearly five per cent of the UK's energy needs have been met through burning wood pellets. Now that the UK has shifted from coal power and is looking for a long-term future beyond gas through ramping up increasingly sophisticated clean energy technology, such a rudimentary power source seems surprising.

Yet, biomass energy counts as 12 per cent of the country's renewable mix and is a key feature in the government's drive to net zero and supply security following Russia's invasion of Ukraine.

The chief source of domestic biomass is Drax Power Station – the largest facility of its kind in the UK – where pellets are imported from across the world to Selby, Yorkshire, and then treated for burning at one of the plant's four large-scale boilers.

Hooked up to the grid, the 3.9GW plant has played a vital role in keeping Britain's lights on and boilers running amid a Russian supply squeeze on the continent this winter.

Biomass is the fourth biggest energy source in the UK (Source: grid.iamkate.com).

Not that this is an act of charity, as Drax has raked in monster profits from the energy price crisis, with earnings up 84 per cent last year to £731m

So far, the site has received £6bn in taxpayer subsidies, including £800m in public funds in 2022 to support biomass energy.

It is also highly likely to feature in the [country's biomass strategy](#), expected to be published between June and April this year as the government scrambles to bolster the country's energy independence.

Yet, the government has an increasingly difficult juggling act of balancing supply security with **emissions** – as the energy source is now at the center of a number controversies and critical evaluations from the industry.

Drax or decarbonize, warns CCC

A damning report from influential advisory group, the Climate Change Committee, was published last week – warning the UK is in danger of missing its goal of decarbonizing the grid by 2035.

This an essential milestone in its push for net zero and its wider climate and energy security goals, which requires a vast ramp-up in transmission infrastructure, renewable power and electrification.

The CCC argued that to boost the UK's green efforts, the government should stop the flow of multimillion pound subsidies to companies that burn trees by 2027.

Instead, the UK should ditch biomass energy in its current form by the end of the decade.

It believed the energy source is too expensive and "even sustainable biomass supplies have significant lifecycle greenhouse gas emissions."

Dr David Joffe, the CCC's head of net zero, later told reporters biomass is "not good value for money for bill-payers, and it's not the right thing for the climate either."

He also warned biomass producers are being overused, and that they "run for as many hours as possible rather than operating flexibly in a back-up role" because they are paid the wholesale price, which is linked to gas prices, alongside subsidies.

BBC has made greenwashing allegations against Drax, which it denies

Drax has been under sustained scrutiny for its emissions, with the power group revealing in its accounts in 2021 that it was responsible 13.3 megatonnes of carbon dioxide through its operations.

Sky News' calculations suggest Drax's Selby plant is the largest CO2 emitter in the UK, before any carbon dioxide removal by new tree growth has been factored in.

This is not a surprise when burning wood produces more greenhouse gases than burning coal – the world's dirtiest fossil fuel.

Drax was accused last year of logging wood from old, carbon rich forests in Canada in a BBC Panorama investigation.

This has been exposed with satellite images showing old-growth forests being sawn down on land belonging to Drax.

Drax denies the claim, [and has offered to begin undertaking a carbon analysis of all its wood imports for its biomass facilities](#).

With such a vast pipeline of wind and solar power, Drax is a headache that frankly the government could live without. Tackling planning laws, development logjams and supply chain challenges that are impeding on the UK's greener future is a far more fruitful use of the government's time and taxpayer money than propping up an energy source that belongs in the past.

U K, Leicestershire

RAWSEP View: Coffee residue burned in a wood stove is mistakenly touted as "clean fuel", when in actuality it is still a solid fuel, emitting much more particulates than a natural gas furnace or a heat pump.

[Danger-to-life warning siren that would hack your mobile to be tested across UK](#)

Leicester Mercury

Wood burning stove. 'Clean fuel' banned from wood burning stoves in smoke control areas · 3. Close up of a wild Brown Rat.

[How to drive safely and efficiently on motorways - Leicestershire Live](#)

Leicester Mercury

Wood burning stove. 'Clean fuel' banned from wood burning stoves in smoke control areas · 3. One family became trapped after attempting to drive ...

Europe

Sweden

https://subscriber.politicopro.com/article/eenews/2023/03/10/soot-exposure-tied-to-higher-risk-of-long-covid-00086550?fbclid=IwAR1JGAWOBWkd23QWU0yw2kQlvP5s7pwPN7kiQrjIZ6_NBxHZiswtaG3_Mno

Soot exposure tied to higher risk of long Covid

The first-of-its kind study supports "the broad public health benefits of continuous efforts to reduce ambient air pollution levels," the researchers said.

Excerpt

for Disease Control and Prevention (virus)

GREENWIRE | Exposure to higher concentrations of a common air pollutant may heighten young adults' odds of developing the syndrome often dubbed long Covid, newly published research has found.

In the study of some 750 people who had the disease borne by the novel coronavirus, a team of mostly Swedish researchers focused on 116 who reported altered senses of taste or smell, extreme fatigue, or other symptoms at least two months later.

"We found pre-pandemic long-term exposure to PM2.5 was significantly associated with increased risk of having long COVID," they wrote in the findings, [published online this week](#) in the journal The Lancet Regional Health - Europe.

While the exact cause is difficult to infer, "a reasonable explanation" is that air pollution triggers inflammation in vulnerable subjects, they added. The results "support the broad public health benefits of continuous efforts to reduce ambient air pollution levels."

PM 2.5, commonly known as soot, is the scientific name for microscopic particulate matter that's no more than 2.5 microns in diameter, or one-thirtieth the width of a human hair. While other research has previously linked higher soot exposure levels to increased chances of contracting Covid-19, the new paper appears to be the first to make a connection to vulnerability to long Covid among young adults who had experienced mild symptoms when first

<https://www.sciencedirect.com/science/article/pii/S2666776223000261>

Ambient air pollution exposure linked to long COVID among young adults: a nested survey in a population-based cohort in Sweden

Background

Post COVID-19 conditions, also known as long COVID, are of public health concern, but little is known about their underlying risk factors. We aimed to investigate associations of air pollution exposure with long COVID among Swedish young adults.

Methods

Episode 55 W

Europe

Swedish study part 2 of 2 , Connection of PM2.5 to Long COVID

We used data from the BAMSE (Children, Allergy, Environment, Stockholm, Epidemiology [in Swedish]) cohort. From October 2021 to February 2022 participants answered a web-questionnaire focusing on persistent symptoms following acute SARS-CoV-2 infection. Long COVID was defined as symptoms after confirmed infection with SARS-CoV-2 lasting for two months or longer. Ambient air pollution levels (particulate matter $\leq 2.5 \mu\text{m}$ [PM2.5], $\leq 10 \mu\text{m}$ [PM10], black carbon [BC] and nitrogen oxides [NOx]) at individual-level addresses were estimated using dispersion modelling.

Findings

A total of 753 participants with SARS-CoV-2 infection were included of whom 116 (15.4%) reported having long COVID. The most common symptoms were altered smell/taste ($n = 80$, 10.6%), dyspnea ($n = 36$, 4.8%) and fatigue ($n = 34$, 4.5%). Median annual PM2.5 exposure in 2019 (pre-pandemic) was 6.39 (interquartile range [IQR] 6.06–6.71) $\mu\text{g}/\text{m}^3$. Adjusted Odds Ratios (95% confidence intervals) of PM2.5 per IQR increase were 1.28 (1.02–1.60) for long COVID, 1.65 (1.09–2.50) for dyspnea symptoms and 1.29 (0.97–1.70) for altered smell/taste. Positive associations were found for the other air pollutants and remained consistent across sensitivity analyses. Associations tended to be stronger among participants with asthma, and those having had COVID during 2020 (versus 2021).

Interpretation

Ambient long-term PM2.5 exposure may affect the risk of long COVID in young adults, supporting efforts for continuously improving air quality.

Added value of this study

In a population-based prospective birth cohort, we assessed individual residence level both early-life and more recent exposure to air pollution (PM2.5, PM10, Black carbon and NOx) before the pandemic on the risk of having long COVID. We found that annual PM2.5 exposure in 2019 was significantly associated with increased risk of long COVID. The associations of PM2.5 tended to be stronger among participants with asthma and those having had COVID during 2020 (versus 2021).

Implications of all the available evidence

Our study provides evidence that air pollution is associated with the risk of having long COVID, suggesting broad adverse effects of ambient air pollution exposure and supporting efforts for continuously improving air quality.

In conclusion, the findings in this cohort study of Swedish young adults suggest that residential long-term exposure to air pollution was associated with increased risk of having post COVID-19 conditions after SARS-CoV-2 infection. These findings shed light on the complex pathogenesis of long-term post COVID-19 symptoms and ubiquitous adverse health effects of air pollutants. Since ambient air pollution is modifiable risk factor through national or regional public health regulations as well as individual interventions, our results support the broad public health benefits of continuous efforts to reduce ambient air pollution levels.

Asia

India, Bhubaneswar

[Bhubaneswar Civic Body To Impose Hefty Fine For Burning Garbage In Open; Check Here](#)

Odisha Bytes

"This step is directed at bringing down the PM10 level to below 60mg/m³ within a year and also reduce the level of PM 2.5, another major pollutant ..

India, Delhi

RAWSEP View: PM2.5 is most extreme at night in Delhi when wood is burned.

[Extreme nighttime pollution in New Delhi air explained by new study - Phys.org](#)

Phys.org

In their study, the team found that the trigger for the high levels of particulate matter is the fumes emitted when wood is burnt. Wood burning is ...

India, Indo-Gangetic Plains

[As told to Parliament \(March 13, 2023\): 19% PM2.5 emissions in Indo-Gangetic Plains come from ...](#)

Down To Earth

The net emission of Particulate Matter 2.5 from the domestic sector (household cooking) was found to be 437 gigagrams per year for the base year ...

Excerpt

The net [emission](#) of Particulate Matter 2.5 from the domestic sector (household cooking) was found to be 437 gigagrams per year for the base year of 2018 in the states in the Indo-Gangetic Plains (Punjab, Haryana, Uttar Pradesh, Bihar, West Bengal, Chandigarh and Delhi), said Bhupender Yadav, Union minister for environment, forest and climate change, told the Lok Sabha. He was citing figures from the Central Pollution Control Board.

This contributes nearly 19 per cent of the total emissions in the region, he noted.

The National Statistical Office survey report of 2018 showed that around 60 per cent households use LPG and the rest still rely on solid fuels, the minister added.

Thailand

[Over 1.4 million people in Thailand suffers diseases related to PM 2.5 | Thaiger](#)

Thaiger

The Ministry of Public Health (MOPH) reveals that 31000 people in Bangkok are suffering from diseases that are caused by PM 2.5 pollution.

Health Effects of PM2.5 (Wood Smoke is 90% PM2.5)

[Impact of Household Air Pollution on Lung Health](#)

Physician's Weekly

Even while the rates of wood smoke exposure are lower in high-income nations, it is still linked to decreased lung function, increased airflow ...