

Episode 56G L July 25, 2023. Biomass RECs wreck the planet, meeting climate goals “on paper” without pollution reduction in reality.

[Sadiq Khan in U-turn on 'eco' wood-burners amid pollution fears - EHN](#)

Environmental Health News

The Guardian reporters write that the mayor of London, Sadiq Khan, has withdrawn his endorsement of wood-burning ...Exposure to PM2.5 particulate matter emitted by wood-burning stoves poses significant health risks. These tiny particles can penetrate deep into the ...

Sadiq Khan in U-turn on 'eco' wood-burners amid pollution fears

July 25, 2023.

[The Guardian reporters Jon Ungoed-Thomas and Skyler King](#) write that the mayor of London, Sadiq Khan, has withdrawn his endorsement of wood-burning stoves promoted as “environmentally friendly” after a surge in sales of the appliances, which contribute to harmful air pollution. In a nutshell: In 2018, Khan endorsed Ecodesign stoves to encourage households to switch from open fires and older stoves, but their emissions of toxic particulate matter have raised health concerns. Domestic wood burning has increased significantly, resulting in more small particle pollution than all road traffic in the UK, contributing to respiratory and cardiovascular diseases. The mayor's decision comes as part of his commitment to tackle air pollution and the climate crisis in London.

Excerpts edited by RAWSEP for brevity and clarity, and relationship to Residents Against Wood Smoke Emission Particulates.

Key quote: The founder of the campaign group Mums for Lungs, which was established in south London in 2017, said her group would like a ban on wood-burning stoves by 2032 unless they are the only source of heat in a home. “The levels of pollution from wood burning are very high already and are incredibly harmful,” she said. The big picture: Exposure to PM2.5 particulate matter emitted by wood-burning stoves poses significant health risks. These tiny particles can penetrate deep into the lungs, leading to respiratory and cardiovascular diseases. The harmful effects of PM2.5 have been linked to premature deaths, and concerns have been raised over the increasing levels of wood-burning emissions in urban areas. Health experts emphasize the need for proper awareness and regulation to address the health implications of using wood-burning stoves. Read the article at [The Guardian](#). Around the world, nearly three billion people rely on solid fuels (primarily wood, dung, crop residues, and charcoal) to meet cooking and heating needs. The resulting pollution is estimated to account for three million premature deaths per year, largely from pneumonia in children, [writes Misbath Daouda](#).

Florida, Palm Beach, an incinerator burning plastic and selling Renewable Energy Credits (RECs) to U S Government Agencies. (The 3 worst, of these 2 are most polluting, and 1 is polluting and ineffective (and called “bundled”), RECs are 1)Biomass (wood burning) Plants, 2)Incinerators of Garbage and Trash, and 3)“Bundled” RECs (which don't produce measurable electricity)

RAWSEP View: There is a new example, since 7/22/2023 of an unapproved indoor residential wood burning stove model, the Ecodesign stove, in London, in England, in the United Kingdom. London, England's Mayor Sadiq Khan, is as of 7/22/2023 refusing to continue to approve as “safe” the Ecodesign, most safe, indoor residential wood burning stove line in England. The misleadingly named Ecodesign wood stove, approved as “safer” in the late 2010s, with that approval now rescinded, emits 465 times the PM2.5 as a natural gas furnace in the United Kingdom. PM2.5 is particulate matter of 2.5 micrometer size, the perfect size to infiltrate the human lung, setting off a cascade of human health problems and early deaths. Can the United States government's Environmental Protection Agency (E P A) stop certifying indoor wood burning stoves as “safe” and instead go to a complaint based system using data from PM2.5 monitors placed in the yards of near neighbors of indoor residential wood burners who create emissions that exceed E P A “safe” limits of PM2.5? Can a U S government agency, the E P A, which itself buys Renewable Energy Credits (RECs) from private U S companies to misleadingly look as if the U S government is meeting renewable use goals, look at indoor residential wood burning as polluting, when the RECs system ignores the polluting emissions of biomass (wood burning) plants and makes those polluting plants eligible to sell RECs to the E P A and other U S government agencies to “greenwash” those government agencies? Hopefully, there can be real-time inconsistency in the E P A regulatory response to polluting residential indoor wood burning, in comparison to the E P A regulatory response to pollution from Biomass (wood burning) plants labeled “renewable”. Even if the E P A is not ready to tackle the problem that Biomass (wood burning) plants are more polluting with CO2 and PM2.5 than the coal burning plants they replaced, could the E P A be ready to tackle the problem of indoor residential wood burning because it would only require handing out PM2.5 monitors on a case by case basis to near neighbors who complain, and enforcing the E P A existing or future modified “safe” limits on

PM2.5 that already exist. Indoor residential wood burning in neighborhoods also so resembles wildfire smoke now invading neighborhoods nationwide from Canadian wildfires, that the similar health effects from both ways of wood burning are increasingly hard to ignore or sweep under the rug. The fact that indoor residential wood burning also contributes to climate change can also be hard to ignore, as we now in 2023 recognize that wildfires contribute to the planet warming, contribute to climate change, and contribute to more wildfires in a continuous loop.

The EPA spurns (incinerator RECs) in a [program to encourage green initiatives](#) at private companies because of **burning non-natural materials like plastics**. But **"In recent years, numerous federal agencies bought RECs from wood-burning biomass plants in rural Georgia communities, where residents complained of toxic pollution**. They also bought RECs from a mill run by International Paper in **Campti, Louisiana, that** burns its own industrial byproduct to power the mill, in effect, subsidizing one of the world's largest paper companies for something it was doing anyway. **The NIH spent almost \$100,000 on RECs to make an environmental health lab "net-zero."** Most RECs bought came from a paper mill and incinerator". President Joe Biden has ordered a dramatic change to how the government buys power, mandating 100 percent clean electricity by 2030 and making it harder for agencies to meet the target without meaningfully changing their practices. But as **a far-off goal without congressional approval**, it **could fall apart if Biden is not reelected next year.**" Which U S government agencies buy polluting RECs that only on paper fight climate change, and in reality contribute mightily to climate change? Mother Jones submitted Freedom of Information Act requests and has the statistical breakdowns of the agency purchases of RECs to bolster U S government agencies' "green" reputations and pad agencies' misleading climate goal-passing signals, but only on paper. Incinerator (garbage and trash burning, including plastic burning) RECs are considered dirtier than even the "controversial" biomass (wood burning) plant RECs, and cheaper, (still polluting) "unbundled" RECs can be bought cheaply, but they come with no connection to measuring any electricity which "bundled RECs" do or do not generate. So in effect, Biomass (wood burning) plants are in the top 3 of the most dubious RECs to purchase. Biomass (wood) burning plants are controversial because they are RECs known to be more polluting than coal burning plants. Incinerator burning RECs are known to be worse for the air than even Biomass (wood burning) plants because incinerators take plastics for burning. And "Bundled RECs" are not required to generate measurable electricity while polluting. RECs purchased which are on federal land count twice. But RECs law doesn't mandate that agencies actually use renewable energy directly. So the government has relied for more than a decade on cheaper **"unbundled" RECs** that are sold separately from the electricity. The article below from Mother Jones states "Federal agencies can say they've gotten greener, and **renewable energy producers get a bit of extra money** for energy they were already producing. **But with no change to the amount of greenhouse gases warming the Earth, the only loser in the transaction is the climate**. The federal government has enough buying power that it could lead the way to a broader, national transition to clean energy. Instead, it has been **leaning on RECs to meet modest environmental goals since a 2005 law** signed by President George W. Bush required federal agencies to use 3 percent renewable energy. That figure rose to **7.5 percent in 2013** and hasn't changed since. **Any renewable electricity produced on federal land counts twice, as an incentive**. The Department of Energy said that in 2021, the most recent year for which data is available, the federal government outperformed the law, with **10 percent renewable electricity**. But that number has **little to do with how government buildings were actually powered**. **Take out RECs, and that number goes down to 6 percent**. And **without the double-counting bonus, the total shrinks to around 3 percent**. The good news is that **most RECs were from wind power**, but the bad news is that more than a **quarter, more than 25%, of RECs purchased came from biomass**, energy produced by burning natural materials like wood and mulch, which can **pollute the air in nearby communities**. Another two percent came from trash incinerators. Fewer than **one percent were from solar energy**." Mother Jones, in this article, examines the effect of United States government agencies buying Renewable Energy Credits (RECs) in order to appear to be meeting climate goals on paper. In reality, buying most RECs does not reduce pollution. Buying clean renewable energy credits can reduce pollution, such as when government agencies buy wind, and solar renewable energy credits. However, a large percentage of RECs are allowed for "renewable: energy that pollutes, sometimes more than fossil fuel energy pollutes. Of course, Residents Against Wood Smoke Emission Particulates is concerned with the designation of wood burning as renewable, which is one of the factors that leads to RECs which are highly polluting, and polluting more than fossil fuel burning. Another quote from the Mother Jones article with bad news from 2022 "It was in 2022 that agencies invested more heavily in **incinerator RECs**, which are less reputable than even **controversial biomass RECs** and are considered **too dirty by the Environmental Protection Agency to be "green power."** Freedom of Information Act requests yielded information from every federal agency that bought at least **10,000 RECs in 2021**, including how much the RECs cost and where they came from. Mother Jones received price details for a quarter of the government's REC purchases, showing an **average cost of just under \$2 per REC**. At that price, it would **cost about \$22 to cover the annual power use from the average US home**." The U S government chooses **the**

cheapest way to look good on paper.. In fall 2022, nine months after Biden laid out his carbon-pollution-free plan, the Departments of Agriculture, Commerce and Energy, as well as NASA, the Air Force and the National Institutes of Health, spent at least \$372,000 on hundreds of thousands of incinerator RECs.

Florida, Palm Beach

[The Government Is Basically Burning Trash to Pad Its Climate Stats - Mother Jones](#)

Mother Jones

US agencies bought RECs from wood-burning biomass plants in rural Georgia, where residents complain of toxic pollution. The Government Is Basically Burning Trash to Pad Its Climate Stats To appear greener, US agencies rely on dodgy renewable energy certificates.

July 24, 2023.

Excerpts edited by RAWSEP for brevity and clarity, and relationship to Residents Against Wood Smoke Emission Particulates.

This article is a collaboration between Mother Jones and [Reveal](#) from The Center for Investigative Reporting, a nonprofit investigative newsroom. Also listen to Reveal's accompanying podcast, "[It's Not Easy Going Green.](#)"

Every day, thousands of tons of trash—rotten food, takeout containers, diapers, old shoes, construction debris, tires, plastic bags, soiled carpet, and lawn clippings—burst into flame and turn to ash and energy at an incinerator in Palm Beach County, Florida. Meanwhile, scientists have been warning that the world is running out of time to avoid the worst ravages of climate change. Greenhouse gas emissions need to be [cut nearly in half by 2030](#) in order to limit warming to 1.5 degrees Celsius above pre-industrial levels. Every fraction of a degree above that brings [increasingly severe suffering](#): worsening heatwaves, fires, floods, storms, drought, and [hunger](#)

From the New York Times, Climate Forward Newsletter

Excerpts edited by RAWSEP for brevity and clarity, and relationship to Residents Against Wood Smoke Emission Particulates.

London politics are being roiled by an expanding tax on polluting vehicles, [Ali Griswold writes in Oversharing.](#)

The Guardian explained the psychology behind why we aren't more scared of climate change. It has to do with the way we experience fear and our [tendency to adapt](#). Community gardens in the Bronx are tempering the effects of climate change by [absorbing water and emissions](#).

India

[Sadiq Khan Reverses Stance on 'Eco' Wood-Burners Due to Concerns over Air Pollution](#)

VigourTimes

However, it has since been discovered that wood-burning stoves emit toxic particulate matter, known as PM2.5, which can have detrimental effects on ...

Excerpts edited by RAWSEP for brevity and clarity, and relationship to Residents Against Wood Smoke Emission Particulates

London Mayor Sadiq Khan has retracted his endorsement of wood-burning stoves, which were previously promoted as environmentally friendly. The increase in sales of these appliances has led to a surge in harmful air pollution. Khan had endorsed Ecodesign stoves in 2018 in an effort to encourage homeowners to switch from older stoves and open fires ...

United States, Science Blog

[The trail of destruction left in pollution's wake - ScienceBlog.com](#)

Science Blog

Some might think I'm just blowing smoke or I'm full of it or hot air. ... Did the owner(s) not understand that it was burning wood (trees in this ...

The trail of destruction left in pollution's wake

July 23, 2023.

Excerpts edited by RAWSEP for brevity and clarity, and relationship to Residents Against Wood Smoke Emission Particulates.

Pollution: What's it good for?!

Well, I've got news! Pollution is a serious matter. Every year in the world, air pollution – just one kind – claims 7-8 million lives. That's not nothing! The World Health Organization, meanwhile, in an Apr. 4, 2022 news statement, said "the evidence base for the damage air pollution does to the human body has been growing rapidly and points to significant harm caused by even low levels of many air pollutants. "Particulate matter, especially PM2.5, is capable of penetrating deep into the lungs and entering the bloodstream, causing cardiovascular, cerebrovascular (stroke) and respiratory impacts. There is emerging evidence that particulate matter impacts other organs and causes other diseases as well."

This is serious business. But, we humans seem generally unmoved by air pollution's presence and impact. This summer we learned about or experienced firsthand the fallout from the wildfires in Canada and how smoke caused by those blazes had in many cases traveled hundreds of miles and left major mid-west, and northern east-coast regions enveloped in woodsmoke – these areas were some of the hardest hit. The overarching message to all those people affected: If you don't have to be outside, stay indoors or sentiments along these lines. Once the smoke disappears, people seem fast to forget. wildfires here seemed routine. The conflagrations were devastating, particularly the one in Paradise, California that claimed a total of 85 lives.

Canada, British Columbia

RAWSEP View: RAWSEP make these edits on the article from British Columbia below. "We can't keep logging. Keeping profits in the community is not the answer, whether it is your community or someone else's community. Money in exchange for human health is not the answer. Setting aside, and leaving alone, the entire forest is the answer. Get out of the business of cutting down trees only to burn them for polluting heating in England. Find another way to employ people in British Columbia, jobs that do not cause air pollution, leading to climate change and more and more wildfires decimating oxygen producing living forests."

Canada, British Columbia, Cheakamus Community Forest

[The Future of Forestry: Cheakamus Community Forest - Wildsight](#)

Wildsight

... largest wood-burning generator or into pulp for toilet paper, equally angry sentiments echo from people tired of losing forestry jobs in BC.

The Future of Forestry: Cheakamus Community Forest

Posted on July 23, 2023.

Excerpts edited by RAWSEP for brevity and clarity, and relationship to Residents Against Wood Smoke Emission Particulates.

Angry sentiments echo from people tired of losing forestry jobs in BC. (Community forestry) employs 76% more people per cubic metre of wood cut than traditional forestry practices.

United States, American Heart Association

[Risk of fatal heart attack may double in heat wave & high fine particulate pollution days](#)

American Heart Association

... extreme cold or high levels of fine particulate matter (PM2.5) air ... days that had the combination of extreme heat and high levels of PM2.5.

[Extreme Heat and Poor Air Quality: Dual Threats to Cardiovascular Health - AHA Journals](#)

AHA Journals

Extreme temperature events, fine particulate matter, and myocardial ... Mortality risk attributable to wildfire-related PM(2.5) pollution: a ...

[Extreme Temperature Events, Fine Particulate Matter, and Myocardial Infarction Mortality](#)

AHA Journals

Lag 01-day exposure to PM2.5 was significantly associated with an increased odds of MI mortality, which attenuated at higher exposures. We observed a ...

United States

[Smoke from Canadian wildfires blankets northern US cities | Regional | abc12.com](#)

ABC12

Smoke from more than 1000 wildfires burning across Canada has wafted over the northern US, bringing poor air quality and pollution that threaten ...

Alaska, Fairbanks, North Star District

[Recent Study Shows EPA Control Measures in Fairbanks North Star are Costly and Unnecessary](#)

KINY

The North Pole and Fairbanks areas have a serious air pollution issue regarding Fine Particulate Matter (PM2.5), caused primarily by residential wood ...

California, Northern California, Wonder Fire

[How Wonder Fire smoke is affecting far Northern California air quality - Record Searchlight](#)

Record Searchlight

Air quality experts don't just measure the amount of smoke in the air, they look at the amount of fine particulate matter (PM 2.5).

California, Petaluma

[Petaluma fire officials credit resident's quick thinking during house fire - The Press Democrat](#)

The Press Democrat

Shortly after 7:30 p.m., a resident of a house in the 900 block of Wood Sorrel Drive noticed smoke coming from under an interior door into the ...

Colorado, Garfield County

[Garfield County introduces new air quality monitoring plan | PostIndependent.com](#)

Post Independent

Garfield County has introduced a Wildfire Smoke Preparedness Plan to monitor particulate matter in the air. The western United States is projected ...

Indiana

[IDEM issues Air Quality Action Days for Monday and Tuesday throughout Northern Indiana](#)

WBIW

IDEM is forecasting high levels of fine particles (PM2.5) due to smoke from Canadian wildfires in the following regions:.

Massachusetts, Boston

[Dog bites increase as the temps rise, study finds - Harvard Gazette](#)

Harvard Gazette - Harvard University

Short-term PM 2.5 has been linked to aggression in humans in multiple studies, so we were expecting to see it here as well. It is possible that ...

Michigan

[Exposure to Extreme Temperatures, Pollution Linked to MI Death | Health | tylerpaper.com](#)

tylerpaper.com

MONDAY, July 24, 2023 (HealthDay News) -- Exposure to extreme temperature events (ETEs) and fine particulate matter (PM2.5) is associated with ...

Michigan

[Wildfire Smoke, Poor Air Quality Returns To MI | Across Michigan, MI Patch](#)

Patch

Reduce or eliminate activities that contribute to air pollution, such as outdoor burning, and use of residential wood burning devices ...

Michigan, Detroit

[Air quality alert issued in Michigan for Tuesday due to Canada wildfires - The Detroit News](#)

The Detroit News

It said the concentration of PM-2.5 in Southeast Michigan may result in unhealthy air quality, particularly for sensitive groups.

Michigan, Detroit

[Canada wildfire smoke threatens Michigan air quality — again - Detroit Free Press](#)

Detroit Free Press

Don't add more smoke. Cancel bonfires and other outdoor burning, including the use of residential wood burning devices such as backyard fire pits.

Michigan, Lapeer County

[Air Quality Alert issued for Lapeer County on Tuesday](#)

The County Press - MiHomepaper

LAPEER COUNTY — Smoke originating from wildfires in west and central ... such as outdoor burning, and use of residential wood burning devices.

Michigan, Southeast Michigan

[Wildfire Smoke, Poor Air Quality Returns To MI | Across Michigan, MI Patch](#)

Patch

SOUTHEAST MICHIGAN — Smoke from wildfires burning hundreds of miles away ... such as outdoor burning, and use of residential wood burning devices ...

Michigan, Southeastern Michigan

[Air quality alert issued for southeastern Michigan beginning Tuesday - WXYZ](#)

WXYZ

... alert for all of Michigan due to smoke from the Canadian wildfires. ... as outdoor burning, and the use of residential wood-burning devices.

Michigan, West Michigan

[Wildfire smoke sparks Clean Air Action Day in West Michigan - FOX 17](#)

FOX 17

That includes outdoor burning or use of residential wood burning devices. People are also encouraged to reduce vehicle trips or vehicle idling, ... "Specifically for smoke, we look at concentrations of PM 2.5, which stands for particulate matter of 2.5 microns or smaller," said Kownacki.

Minnesota

[Wildfire smoke prompts air quality alert for sensitive groups across Minnesota for Friday and Saturday](#)

Daily Globe

Reduce or eliminate activities that contribute to air pollution, such as outdoor burning, and use of residential wood burning devices. Reduce vehicle ...

Minnesota

[Ten states sue EPA over wood furnace testing - The Timberjay](#)

The Timberjay

... due to their emissions, which include extremely fine particulates, known as PM 2.5, as well as carbon monoxide and volatile organic compounds.

Minnesota, Iron Range

[Jerome Christenson: Wood smoke, iron ore and a Psalm - Post Bulletin](#)

Post Bulletin

How did the Iron Range get its many lakes? It was something to ponder while paddling on one, beneath a wildfire smoke-blotted sky.

Minnesota, North Mankato

[City of Springfield: Air Quality Alert in effect until Saturday - KEYC](#)

KEYC

Use of residential wood burning devices; Reduce vehicle trips and vehicle idling as much as possible. Keep windows closed overnight to prevent smoke ...

Minnesota, Red Lake

[Air quality alert issued due to wildfire smoke for Saturday through Monday for central and ...](#)

Red Lake Nation News

Ground-level smoke will reach northern Minn. by 4 p.m. on Saturday, ... such as outdoor burning, and use of residential wood burning devices.

New York, Upstate

[Upstate New York's smoky summer days in 2023 explained - The Daily Gazette](#)

The Daily Gazette

Wildfire smoke is regarded as PM 2.5, a fine form of matter also found alongside highways, factories and power plants.

Pennsylvania, Allentown

[New epoch marked by human impact on Earth began in 1950s | News - WFMZ](#)

WFMZ

PM-2.5 causes the biggest risk to humans as it can be inhaled deep into human lungs and even enter the bloodstream.

Virginia, Prince William

[Va. has no wildfire pollution monitors in Prince William | News | princewilliamtimes.com](#)

Prince William Times

"We have no plans to expand PM 2.5 testing," said Charles Turner, ... Also, until this summer, particulate matter pollution from wildfire smoke ...

Washington, DC

[Wildfire smoke brings hazy days to summer camps of covid generation - Washington Post](#)

Washington Post

Instead of a trust walk — when campers walk through the woods at night holding onto each others shoulders — they watched "The Little Mermaid."

Wisconsin, Milwaukee

[Milwaukee air quality: Wisconsin DNR issues warning for wildfire smoke](#)

Milwaukee Journal Sentinel

The advisory is effective from 6 p.m. Sunday to noon Tuesday. ... Fine particulate matter, also known as PM2.5, is the primary pollutant causing ...

United Kingdom, PM2.5 from wood smoke and human health

[Air pollution exposure linked to PH, UK population study shows - Pulmonary Hypertension News](#)

Pulmonary Hypertension News

PM2.5-sized particulates can penetrate deeper into the lungs than PM10. Participants' average age was 56.5 years, of whom 54.6% were women, and 54.6% ...

United Kingdom, Oxford

[Oxford City Council looks to expand longstanding Smoke Control Areas to cover whole city](#)

Oxford City Council

Smoke Control Areas stop people burning high-polluting fuels to protect the ... "Although less than 10% of households in the UK have wood burning ...

Greece

[What wildfire smoke actually does to your body as thousands of tourists are evacuated from Greece](#)

LADbible

Wildfire smoke is particularly harmful due to a mix of pollutants including nitrogen oxide, monoxide and PM 2.5 pollutants, that are made up of ...

Greece

[greece forest fires, 2500 people evacuated - Asiana Times](#)

Asiana Times

These Wildfire sizes are even smaller than the PM 2.5 matter. The emissions from wildfires in Greece this year are more than double the average in ...

Greece, Island of Rhodes

['The wind fans the flames like a blacksmith's fire - there's nothing that can stop it ... - Daily Mail](#)

Daily Mail

There isn't a cloud in the sky, just the smell of old fires and a wisp of wood smoke. I am surrounded by a forest of charred bushes and trees.

Russia

[The wood industry releases more carbon than Russia — and we're mostly not counting its emissions](#)

Yahoo News

That is a large number in its own right: more than three times the annual emissions from aviation and nearly twice the carbon burned off by fossil ...

China, PM2.5 and human health

[Excess heart attack mortality occurs during heat waves, days of poor air quality in China](#)

Healio

Researchers evaluated the association between exposure to heat waves, cold spells and fine particulate matter (PM2.5) with MI death.

India

[Air pollution impacts villages and cities almost equally but pollution control funds only for ...](#)

Down To Earth

In 2022, the annual average of the most toxic air pollutant, ultrafine particulate matter (PM) 2.5, was as poor in rural India as urban India; ...

India, Andhra Pradesh

['Andhra Pradesh has max PM 2.5 monitors, but poor AQI data'- The New Indian Express](#)

The New Indian Express

However, none of these stations meet the minimum requirement of 104 days of monitoring per year.

India, Delhi

[Harnessing data to optimise air quality policies | ORF - Observer Research Foundation](#)

Observer Research Foundation

PM 2.5 and PM 10 are fine particulate matter composed of tiny droplets of liquid, dry solid fragments, and solid cores with liquid coatings that ...

PM2.5 and humans health

[Risk of fatal heart attack may double in heat wave & high fine particulate pollution days](#)

Newswise

Released: 24-Jul-2023 5:05 PM EDT ... extreme cold or high levels of fine particulate matter (PM2.5) air pollution were significantly associated ...

So if the argument about PM2.5 magnitude from emissions alone is enough to prove that wood burning in a wood stove is bad for human health (and concomitantly hastens climate change), what could replace wood stove certification to protect people from the pollution of wood burning?

1) There could be a complaint-based system of regulating wood burning pollution.

2) The PM2.5 from wood burning can be measured, and if it exceeds a limit, regulation could kick in. We already have limits set by the E P A, which are not stringent enough, but which apply to PM2.5. This editor of RAWSEPresidents was one of around 250 people who testified by video in February 2023, with all but around 5 (wood industry representatives or their allies). Those near 250 people all asked for the E P A to lower the limits of “safe” PM2.5 emissions to 25 micrograms per meter cubed daily (spike measurements) or 8 micrograms per meter cubed annually (average yearly) measurements. The World Health Organization already recommended that a limit of 5 micrograms per meter cubed annually be used, so these lowered PM2.5 limits would bring them closer to what the W H O recommends.

3) How does a complaint-based system of regulating indoor residential wood burning, the seemingly “invisible” wood burning, work? 3a) The government, probably Health Departments, could hand out free PM2.5 monitors, probably PurpleAir PM2.5 monitors, which only cost \$249, to any near neighbor of an indoor residential wood burner who complains of wood smoke from indoor residential wood burning entering the near neighbors’ yard and infiltrating their home. The near neighbors have coped in the past from wood smoke infiltrating their home by running air purifiers and keeping doors and windows closed, which is identical to the advice now given to United States residents who recently have had to cope with wood smoke from Canadian wildfires. 3b) Why is the term “near neighbor” used? Wood smoke from indoor residential wood burning usually does not go far, and near neighbors are usually the “canaries in a coal mine”. Near neighbors are “indicators” of pollution and suffer from the pollution, that is often not detected by the 4 senses (sight, hearing, taste, and smell) of ordinary humans when they pass through neighborhoods infiltrated with wood smoke, exposing their children and dogs walking with them, unwittingly, to wood smoke pollution that can harm their health without their perception of it. 3c) The PM2.5 monitors of near neighbors can detect the wood smoke pollution from one indoor wood burner when PM2.5 monitors farther away cannot. There need to be more, many, PM2.5 monitors, and they need to be placed in residential neighborhoods, not just near industrial facilities such as Biomass (wood burning) plants. 3c) Why PurpleAir PM2.5 monitors? Purple PM2.5 monitors are already on U S AirNow Maps of Smoke and Fire, alongside E P A standard PM2.5 monitors which cost \$100,000 and United States residents have been using the reading from PurpleAir PM2.5 monitors to see if the air is fit to breathe in their localities, in the recent events of wildfire smoke invading from Canada. For instance, in the zip code 53716 in Wisconsin, the general public is using the readings from a PurpleAir monitor in RAWSEP’s editor’s back yard, with no backup PM2.5 monitor in the Zip Code 53716. I keep the PM2.5 monitor on 24/7. You are welcome! 3d) Another advantage of PurpleAir PM2.5 monitors is that if they are kept on 24/7 they can detect indoor residential wood burning pollution on weekends and overnight, when wood burners may burn thinking they are undetectable to authorities or authorities will not be on duty. PurpleAir PM2.5 monitors save historic data for years, perhaps indefinitely, and the weekend and overnight burning pollution data can be looked at and downloaded by the general public at any time, and downloaded by government authorities during normal government working hours, with no need to enter wood burning residences nor check certification of wood stoves to determine if pollution above E P A limits is being emitted. 3e) So wood stove certification is not needed. Why is there wood stove “safe” certification when wood burning for residential heating is not safe, but is in fact highly polluting? The wood stove industry would like their wood burning stoves certified safe in order to sell products and make money, and the human health is put by the wayside. Should the government allow this to continue.