Episode 56VB. Part 2 of 2)Main Content.

Part One:

1)Chapter one: Indoor residential wood burning.

The Ecodesign indoor residential wood stove is the cleanest burning indoor residential wood stove in the United Kingdom. Scientific testing shows the Ecodesign wood burning emits 2.8 times the CO2 and PM2.5 as the fossil fuel coal burning. From the Ecodesign wood burning emits 450 times the CO2 and PM2.5 as the fossil fuel natural gas burning. Wood burning emits 90% PM2.5, 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.

There should be laws (federal, state or local) that allow PurpleAir PM2.5 monitor data from monitors hung from the eaves of the roofs of near neighbors of indoor residential wood burners, to shut down polluting wood stoves that emit PM2.5 above Environmental Protection Agency National Ambient Air Quality Standards (EPA NAAQS) PM2.5 “safe” levels, which in 2024 are 35 micrograms per cubic meter in a 24 hour period or 9 micrograms per cubic meter annually, or PM2.5 “safe” levels above World Health Organization Standards in 2024 of 5 micrograms per cubic meter annually.

There are not enough EPA $100,000 regulatory monitors compared to PurpleAir PM2.5 monitors, which cost under $300. This is demonstrated in the state of Wisconsin, where on EPA AirNow maps of Smoke and Fire, EPA $100,000 regulatory monitor data is shown alongside PurpleAir PM2.5 monitor data, correlated to EPA $100,000 regulatory monitors with a simple mathematical formula (PA times 0.514) plus 1.8304. There are only 16 $100,000 EPA regulatory monitors and around 90 PurpleAir PM2.5 monitors on Wisconsin AirNow Maps of Smoke and Fire. EPA regulatory monitors collect PM2.5 manually, separate the PM2.5 particles into two different densities, one which is heavier called gravel density and the second which is lighter called wood density. Then the two densities are weighed separately and the data on quantity collected is available in about an hour on the EPA Maps of Smoke and Fire. In contrast, PurpleAir PM2.5 monitors use a laser to count the number of PM2.5 particles that move in front of the laser, and the information is available on both the PurpleAir Map, and on the EPA AirNow Map of Smoke and Fire within 10 minutes. There is a question of whether the correlation formula is used to “smooth out” the results from the PurpleAir monitor to eliminate any hot spots that might confuse users of a map of smoke and fire that there is a wildfire in the vicinity when the true source of the PM2.5 air pollution is a hyper-localized indoor residential wood burner. The EPA claims that PurpleAir PM2.5 monitors read high. The high readings may only be accurate readings of a large amount of wood density PM2.5 and less or no gravel density PM2.5 in RAWSEP’s opinion.

Hyper-localization of PurpleAir PM2.5 monitors is needed. EPA $100,000 regulatory monitors are located near industrial sources of pollution. There are few EPA $100,000 regulatory monitors planned to be added every year, because of economic constraints. That leaves PurpleAir PM2.5 monitors to fill the gap in data collection of real life PM2.5 pollution, that affects near neighbors of indoor residential wood burners more than those who live farther away. A common-sense, real-life analogy would be Secondhand Smoke from cigarettes in the workplace. An employee subjected to Secondhand Smoke from a cigarette smoker in the desk next to him, or in an enclosed office would involuntarily inhale much more smoke than someone in another office, for example. But the Secondhand Smoke would move through the air and the ventilation system and have some effect on all workers in an office building which allowed cigarette smoking at work.

2)Chapter two: Outdoor residential wood burning.

Outdoor wood burners were marketed to potential wood burners as convenient because they shunted wood smoke to nearby neighbors. For these reasons, outdoor wood burners were often located on the edges of the wood burners property, away from the wood burner’s living quarters, but near to any near neighbor’s homes. This harm to near neighbors was apparent, and by 2011 in Wisconsin, for example, dozens of towns and cities had banned Outdoor Wood Boilers through local ordinances, based on complaints by near neighbors of Outdoor Wood Boilers.

In New Zealand, in some areas, the problem of concealment of indoor wood burning was addressed by portable heat sensors aimed at chimneys to prove that fireplaces and other indoor wood burners were being used, in violation of local ordinances, when it was unclear whether wood was being burned because of the concealment of wood burners within a building. The emissions of wood burning are the same whether they come from Outdoor Wood Boilers or indoor wood burning, so they should be treated the same by law and by enforcement of law, as air pollution.

3)Chapter three: Industrial wood burning replacing coal burning based on the debunked theory of Carbon Neutrality of Wood Burning.

Carbon Neutrality of Wood Burning is a scientifically debunked theory that allows politicians around the world to replace coal fired power plants with wood burning power plants and not count the emissions from the wood burning power plants toward meeting each country's Climate Goals. Ignoring wood burning emissions brings us closer to Climate Change, not farther away. Hundreds of scientists in the last few years have written letters to the European Union Parliament and the United States Senate and House of Representatives asking that this scientifically debunked theory not be used as a justification for replacing coal burning plants with wood burning plants.

The scientifically debunked theory of Carbon Neutrality of Wood Burning says that a tree cut down and burned is renewable because it can be replaced by another tree planted in its place. Wood smoke is 90% PM2.5, particulates of 2.5 micrometer size, the perfect size to infiltrate the human lung, setting off a cascade of human health problems and early deaths. Wood burning emits 2.8 times the PM2.5 as the fossil fuel coal burning. Woodburning emits 450 times the PM2.5 as the fossil fuel natural gas burning. Despite these scientific facts, recently wood burning has replaced coal burning in industrial plants around the world, because of the scientifically debunked political theory of the Carbon Neutrality of Wood Burning. This scientifically debunked theory states that since a tree can be planted in place of a tree that is cut down to be burned for industrial energy, the tree is renewable energy and the tree will produce oxygen from carbon dioxide during the natural process of photosynthesis by the tree. In this way, a mature tree to replace another mature tree takes polluting carbon in the form of carbon dioxide out of the air, and negates whatever CO2 is emitted by burning the tree. However, one of the reasons this theory is debunked is that it takes decades or centuries for a tree to grow to the stature of the tree that is cut down, and in the meantime, over centuries or decades, CO2 and PM2.5 is being emitted by burning trees, in this scheme. Since wood burning emits 2.8 times the CO2 and PM2.5 of coal burning, as mentioned earlier, this is only Carbon Neutrality if you ignore the emissions from the actual wood burning. It is a fact that most people do not know, and a major area in which to educate people, that the wood burning plants that have popped up to replace coal burning plants are bringing us closer to climate change, not farther away, because lowering carbon emissions is only on paper, not in reality, when wood replaces coal as a fuel to burn. Wood burning emissions are ignored in each country's Climate Goals, in every country around the world. This is false accounting for Carbon, and is bringing us closer to Climate Change, as well as contributing to the air pollution of PM2.5 that causes many human illnesses and shortens lives around the world.

The idea that wood burning is natural and therefore somehow non-polluting bleeds down to the individual indoor residential wood burner from the rationalization of polluting wood burning by the wood burning industry, in the scientifically debunked theory of Carbon Neutrality of Wood Burning.

4)Chapter four: The failed program of certification of indoor residential wood burning appliances since 1987 in the United States.

The Environmental Protection Agency New Source Performance Standards for Residential Wood Heaters (EPA NSPS) began only in 1987. The Office of the Attorney General (OIG), watchdog of the EPA, released a report in February 2023 that described the EPA wood stove certification program as a failed program. Wood stoves given EPA certification as "safe" failed in many or most cases to comply with even the lax standards of the EPA, since inception of the program in 1987. 10 United States Attorney sued the EPA to change and try to improve the program, if only to give wood stove vendors certainty, but in Spring of 2023 the EPA had already replied to the 10 Attorneys General that the EPA could only make changes by, at earliest, 2027.

What alternative do near neighbors of indoor residential wood burners whose wood smoke enters the near neighbors' yards and sickens the near neighbors, what alternative do near neighbors have to the NSPS, which is a failed program? The alternative is to pass legislation against PM2.5 levels above EPA NAAQS and shut down those hyper-localized sources of air pollution, indoor residential wood stoves, one wood stove at a time if necessary, using as evidence readings from PurpleAir PM2.5 monitors hanging from the eaves of near neighbor's houses.

5)Chapter five: Use of EPA $100,000 Regulatory Monitors.

As explained above, EPA Regulatory monitors are meant to be used near industrial facilities, and PM2.5 emissions from industrial wood burning seem to be carefully excised from statistical reports, at least those reports connected to Climate Goals.

6)Chapter six: Use of PurpleAir PM2.5 Monitors in hyper-localized residential settings.

There have to be more PurpleAir PM2.5 monitors and they have to be located near to individual residential wood burners, in order to identify the source of the air pollution, in order to solve the problem and shut down the source of the problem.

7)Chapter seven: How to download PurpleAir PM2.5 monitor data, as a member of the general public.

In 2024, the method of PurpleAir PM2.5 data download was improved, and now it is easy to click on an individual PurpleAir PM2.5 monitor and download a CSV file to your computer hard drive, resave the file as an Excel file to have more functionality, and look at the data available in 24 hour (daily), weekly, monthly, and yearly averages since installation of the individual PurpleAir PM2.5 monitor.

8)Chapter eight: How to download PurpleAir PM2.5 monitor data, as an employee of a government health department. Any member of the public can download data from the PurpleAir map, and government employees can download comprehensive data, if a PurpleAir monitor is left on continuously, download at any time of day, which would include download by a government employee during normal working hours.

9)Chapter nine: Why suing against air pollution from indoor residential wood burning is not an option for a person of modest means. Lawsuits are expensive, and if laws are passed, government workers can enforce regulations. The government will expend less money on enforcing laws against air pollution than dealing with increased health care costs for communities that will ensue if nothing is done to stop air pollution.

10)Chapter ten: Why new laws (federal, state or local) need to be written to end air pollution in the yards of near neighbors of indoor residential wood burners. As stated earlier, PM2.5 is the perfect size to infiltrate the human lung, setting off a cascade of human health problems and early deaths. Laws, and enforcement of laws will protect the health of near neighbors of indoor residential wood burners and help slow Climate Change that affects the entire community, and eventually affects the world.

11)Chapter eleven: Comparison with Mothers Against Drunk Driving. Comparison with a Breathalyzer Test for an individual drunk driver. Alcoholism is a physical addiction but burning wood is not a physical addiction which produces physical withdrawal symptoms. Therefore, asking an indoor residential wood burner to stop burning is easier than asking an alcoholic to stop drinking, or asking an alcoholic to stop drinking and driving. Pinpointing the drunk driver and stopping that individual from continuing to drive drunk is the only way to get results and protect public safety. Pinpointing the individual who is polluting the air with wood smoke and stopping that individual is the only way to get results and protect public safety.

12)Chapter twelve: Comparison with a Radar Gun aimed at an individual car which speeds. Speeders are not stopped by estimating the average speed of many drivers on the same road, and concluding there is no problem. Pinpointing the problem speeder and stopping that individual from continuing to speed is the only way to get results and protect public safety. Pinpointing the individual who is polluting the air with wood smoke and stopping that individual is the only way to get results and protect public safety.

13)Chapter thirteen: Comparison with reporting to your work supervisor Secondhand Smoke from an individual cigarette smoker in the workplace. Nicotine addiction is a physical addiction but burning wood is not a physical addiction. Therefore, asking an indoor residential wood burner to stop burning is easier than asking a cigarette smoker to stop smoking, or asking a cigarette smoker to stop smoking in the workplace. Pinpointing the cigarette smoker and stopping that individual from continuing to smoke in the workplace is the only way to get results and protect public safety. Pinpointing the individual who is polluting the air with wood smoke and stopping that individual is the only way to get results and protect public safety.

14)Chapter fourteen: Comparison to reporting to authorities that a child is locked alone in a car in summer heat. Pinpointing the parent who has locked a child in a hot car in the summer and left for an extended period of time and stopping that individual from continuing to take these actions or continuing to be negligent in care of a child, is the only way to get results and protect public safety. Pinpointing the individual who is polluting the air with wood smoke and stopping that individual is the only way to get results and protect public safety.
15)Chapter fifteen: Comparison to reporting that a dog is left chained outside for hours in the cold in winter. Pinpointing the dog owner who has left a dog chained outside for hours in the cold in winter and left for an extended period of time and stopping that individual from continuing to take these actions or stopping that individual from continuing to be negligent in care of a dog, is the only way to get results and protect public safety. Pinpointing the individual who is polluting the air with wood smoke and stopping that individual is the only way to get results and protect public safety.
16)Chapter sixteen: The emphasis on helping near neighbors of indoor residential wood burning puts the wishes and motivations of the indoor residential wood burner next to last. This allows concern for the near neighbor of an indoor residential wood burner to take precedence. Since the near neighbor represents the interests of the whole community in clean air, this emphasis on the near neighbor above the perceived economic interests of the indoor residential wood burner allows the emphasis to be on health concerns, as it should be.
17)Chapter seventeen: The emphasis on helping near neighbors of indoor residential wood burning puts the concerns of near neighbors above examination of unfortunate effects of advertising by the wood burning industry on the indoor residential wood burner, and in that way puts that concern about the indoor residential wood burner last. Since the near neighbor represents the interests of the whole community in clean air, this emphasis on the near neighbor above the perceived economic interests of the indoor residential wood burner allows the emphasis to be on health concerns, as it should be.
18)Chapter eighteen: Notable changes since April 2022, and what the future holds for near neighbors of indoor residential wood burners whose wood smoke enters their yards and sickens them. To be determined.
19)Chapter nineteen: Economic incentives to replace wood burning with Heat Pumps that work down to 40 degrees below zero. Heat Pump rebates of up to $8,000 based on a sliding income scale in 2024, put Heat Pumps that work down to 40 degrees below zero within the means of any citizen in the United States. Heat Pumps can also be used as air conditioners and Heat Pumps lower monthly heating bills immediately upon installation.
20)Chapter twenty: How countries around the world can or will be able to replace indoor residential wood burning with truly clean energy sources. To be determined.

Part 2. (21 through 26) Extreme Circumstances. Look at extreme circumstances from the perspective of near neighbors of the air pollution, in order to put the threat to near neighbors in perspective and in order to allow room to consider solutions rather than only placating the air polluters.

21)Chapter 21: Wartime privation indoor residential wood burning. The example of Ukraine. First, do not send indoor residential wood burning appliances to Ukraine. Adding unnecessary air pollution to Ukraine is not a solution to their energy problems. Rebuilding bombed electrical infrastructure is the solution. Providing clean energy sources of home heating and home cooking is the solution. This could come in the form of solar stoves, electric stoves, or Heat Pumps that work down to 40 degrees below zero.

22)Chapter 22: Homeless privation indoor residential wood burning. The example of Phoenix, Arizona. One of the main problems of near neighbors of homeless encampments was air pollution from wood burning by the homeless. It also follows that the homeless who burn wood themselves suffer from ill health and early death because of the air pollution from wood burning.

23)Chapter 23: Terrorists using wood burning to control subject populations. The example of Haiti. Solid fuel burning in the form of tire, car and wood burning was used in 2023 and 2024 as a method of controlling populations or causing populations to flee Haiti and leave Haiti in the hands of terrorists. 24)Chapter 24: Natural gas suggested as a power source to be used up to 30 years from now, until 2055, rather than looking at natural gas as a temporary bridge to the truly clean energy of wind, solar and geothermal. The scenario of using natural gas for home heating and home cooking until 2055 was suggested by an article in the Washington Examiner, a conservative newspaper, by a conservative columnist. This suggestion was not practical because although natural gas emits one 450th of the PM2.5 as wood burning, natural gas also has other noxious emissions, so burning natural gas is not truly clean energy. Use the bridge as a temporary bridge that it is meant to be.

25)Chapter 25: Nuclear power plant destruction, with release of nuclear radiation, was recently threatened by Russia as one of their tools of war against Ukraine. Nuclear power plants have been suggested or threatened as the only alternative to indoor residential wood burning. The sad truth is that human beings have not been good husbanders of nuclear power. There is too much risk in putting nuclear power in the hands of mere mortals, who make mistakes and will predictably not be able to handle nuclear power carefully enough to enjoy any benefit from using it, above and beyond the harm it can unleash.

26)Chapter 26: Indigence. Economic problems can be solved by government aid. Looking at the income of people who claim to be indigent is the first way to solve this problem. If a person is truly indigent, Heat Pumps rebates are available for up to $8,000 in 2024 based on a sliding income scale.