

Episode 56EP May 27, 2023. The "How to" and "I feel sorry for you if you burn wood. So, change." Issue.

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 30 minute Youtube videos and Spotify podcasts as well as podcasts on Amazon Music Prime (free for Prime subscribers), podcasts.google.com, Cast Box, and Pocket Cast (Pocket Cast is only free on the phone App. Pocket Cast works on Apple phones).

A)How to stop indoor residential wood burning. The Government and now consumer technology plays a big role in whether we can regulate and stop the air pollution we as individuals generate.

A)1)Common Sense and compassion. As sensible people, most of us realize that when we see wood smoke and breathe it in, it is not good for us. Recently, a young woman was killed in a house fire only a few days before her wedding. There was an outpouring of grief and tributes to her for days on local TV stations. It was a great loss. She was young and just starting out her life. The news stories said she died of smoke inhalation. So, as sensible people, we shy away from wood smoke, and know it is not good for us. Recently wildfire air pollution alerts all across the nation underlined the fact that wood smoke is unhealthy to breathe.

A)2)Medical Research. Medical research, especially in the last few years, has shown that wood smoke exacerbates existing health conditions and can lead to strokes and heart attacks. Long term exposure can lead to asthma and lung cancer. This has been well publicized to those who are interested in health statistics.

A)3)Earth Day in 1970 and laws passed by the Federal Government since then have heightened awareness of Air Pollution, and the fact that it crosses state borders, and so is assigned to the Federal Government to regulate.

A)4)Historically, Health Departments usually have had stricter regulations of outdoor wood burning than indoor wood burning. This is probably because outdoor wood burning can be easily visually detected compared to indoor wood burning. Now indoor residential wood burning can be detected as easily as outdoor wood burning.

A)5)New Technology 1. Low cost consumer PurpleAir Particulate monitors for 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, are now available to consumers. The PurpleAir brand of \$249 PM2.5 monitor is used alongside \$100,000 Environmental Protection Agency (E P A) PM2.5 monitors on AirNow maps of smoke and fire, correlated to E P A standard PM2.5 monitors with a simple mathematical formula. The difference between the monitors is that the standard E P A PM2.5 monitor collects physical PM2.5 and separates the particulates into what is called "gravel weight" (heavier weight) PM2.5 and what is called "wood weight" (lighter weight) PM2.5 and actually weighs each separation of PM2.5 to find out how much PM2.5 is in the air. The E P A PM2.5 monitors take an hour to process the PM2.5 and spit out data on the weight of particulates in the air. The PurpleAir PM2.5 monitors measure the particulates that pass past the laser inside the PurpleAir PM2.5 monitor and that is how the PurpleAir monitor counts the number of particles of PM2.5 in the air. The PurpleAir monitor puts out data every 10 minutes, which is considered "real time" data. The PurpleAir monitor uses the newest technology, and standard E P A PM2.5 monitors use an older technology. The current "safe" E P A limit for PM2.5 is 12 micrograms per meter cubed averaged annually and 35 micrograms per meter cubed averaged over 24 hours. The E P A is currently deciding on whether to lower the "safe" PM2.5 limits to 8 annually and 25 daily as requested overwhelmingly by commenters at E P A hearings held for lowering the "safe" limits in February 2023.

A)6)New Technology 2. Heat pumps can now work at temperatures down to 40 degrees below zero Fahrenheit.

A)7)Financial Help from the Government. For Indoor Residential Wood Burners, to move to clean home heating. If you are poor, and meet the eligibility requirements, apply for help from the Low Income Home Energy Assistance Program (L I H E A P) or other government programs that can help with financing clean home heating appliances. The government has subsidies for Heat Pumps in several government programs.

A)8) Financial Help from Charities. For Indoor Residential Wood Burners, to move to clean home heating. Charities such as the American Lung Association have buyback programs for wood stoves in exchange for Heat Pumps.

A)9)Financial Help from Climate Bills, Biden Administration Climate Bills. For Near Neighbors of Indoor Residential Wood Burners. Money could be used to hand out PM2.5 monitors to any resident who complains of wood smoke from their neighbor's wood burning. Money could also be used to enforce regulations against indoor residential wood burning that pollutes the yard and infiltrates the homes of near neighbors. With PM2.5 monitors, monitoring could be done on weekends and overnights, with data collected by government officials or the general public from PurpleAir maps during normal working hours. There would be no need to enter residences to shut down residential wood burning. But there would be some time and paperwork required for government officials when shutting down residential wood burning over E P A "safe" limits. Money from environmental justice grants might pay for enforcement of pilot projects enforcing shutting down of residential wood burning using PM2.5 monitors in yards of near neighbors. Money is now available for environmental justice to low income communities who are harmed by air polluting emissions.

A)10)Fugitive Emissions, deliberately uncounted (wildfires in exempted states) and not counted (indoor residential wood burning) because indoor residential wood burning emissions are hyper-localized. Wildfire smoke is excluded from the count of total PM2.5 pollution in some states that apply for this exemption, such as California and Texas. In that way, those "wildfire excluded" states can say they are meeting air quality goals while the actual wildfire emissions (which are not counted) would show they are not. E P A PM2.5 monitors are so widely spaced they don't catch hyper-localized PM2.5 emissions, such as those found in the yards of near neighbors of indoor residential wood burners anyway. Counting emissions using many, many PurpleAir PM2.5 monitors strategically located close to indoor residential wood burners will make the E P A PM2.5 total emissions count more realistic. Does not counting wildfire PM2.5 emissions make states like California and Texas less vigilant in regulating and stopping PM2.5 emissions from non-wildfire sources, if these "wildfire exempted" states meet their air quality goals through ignoring wildfire PM2.5 emissions?

A)11)New Technology 3a, Biomass (wood) burning produces the same emissions as indoor residential wood burning. They are both wood burning. Biomass (wood) burning qualifies as renewable, and qualifies for renewable subsidies from the government, because of the political theory that Wood burning is Carbon Neutral. Scientists refute the idea that wood burning is Carbon Neutral, since polluting emissions of CO2 and PM2.5 from wood burning surpass the emissions of Coal Burning and PM2.5 emissions of wood burning are 450 times the PM2.5 emissions of Natural Gas Burning. The Political idea of Carbon Neutrality of wood burning derives from the idea that polluting emissions can be ignored since if a tree is planted to replace a tree that was cut down, eventually the new tree will emit oxygen and that will balance out all the pollution that has happened while the tree was growing to the age the previous tree was harvested at. A glaring problem with this theory is first that real wood burning emissions are ignored and second it takes decades or centuries for a tree to grow enough to replace a mature tree harvested and burned. This explanation of the link between Biomass (wood) burning and the theory of Carbon Neutrality definitively discredited by scientists is the introduction to B9)New Technology 3b,

A)12)New Technology 3b, The Iron Air Battery. The Iron Air Battery is needed because Lithium batteries are small and expensive. An Iron Air Battery is large, heavy, but inexpensive to build and to run. It could be used in Industry to hold Solar, Wind and Geothermal energy for up to 100 hours, cheaply and on a large scale. Iron is cheap and Air is cheap. Currently the Biden Administration spent a large share of their time at the G7 summit making partnerships with other countries to obtain expensive Lithium so that the U S can move to use of electric cars on a large scale, in order to slow climate change. Iron Air batteries might also be used to power Electric Cars at recharging stations eventually. But the most obvious use of the Iron Air battery is to send reliably available power to an electric grid that powers electric Heat Pumps in residential housing.

B)I like to think of myself as a diplomat. I can listen to someone for a good long while about their lives and struggles. I can restrain myself from talking about my concern about the health effects of wood burning until the last few minutes. I can bluntly but efficiently present the facts of the health effects of wood smoke on near neighbors of indoor residential wood burners quickly and dispassionately. However, if one of your struggles in life is that you love, love, love wood burning and can't give it up, I feel sorry for you. And I simply tell you I feel sorry for you. That has been about the extent of my diplomatic gestures so far because I get choked up at your torment, your addiction, your loyalty to the tradition of

wood burning. It seems so stupid. I feel sorry for stupid people. I don't mean I feel sorry for mentally disabled people, I mean I feel sorry for people who disable themselves, and their thinking processes, with stupid ideas.

However, it is not healthy to continue to feel sorry for people whose actions harm your health. So, I only feel sorry for you momentarily, sorry. But I can come up with solutions to the harm you are doing to my health, and a solution for you to pursue as an alternative to whatever drives you to burn wood.

B) "Change" listicle follows.

B)1) Stop burning wood. Whether or not you justify burning wood for home heating or for home cooking, stop it. There are alternatives.

B)2) Begin to use your existing clean alternatives to wood burning such as Heat Pumps which you already own or go out and buy home heating appliances which are clean alternatives to wood burning.

B)3) Stop saying you are poor if you are not. Tell the truth. Go to a psychiatrist to find out why you are harming your and your neighbor's health if you can afford to use clean home heating and home cooking appliances. Now I insulted you, but I tried to be diplomatic, at first, remember.

B)4) If you are poor, and meet the eligibility requirements, apply for help from the Low Income Home Energy Assistance Program (L I H E A P) or other government programs that can help with financing clean home heating appliances. The government has subsidies for Heat Pumps in several government programs. Charities such as the American Lung Association have buyback programs for wood stoves in exchange for Heat Pumps. Heat pumps can now work at temperatures down to 40 degrees below zero Fahrenheit.

B)5) I'm stretching here, but maybe now that you are not currently harming my health and yours, you could spend some time telling others about this marvelous idea: you can heat your home and cook your food without harming your own health and the health of your near neighbors. You can stop sending excessive CO<sub>2</sub> out into the air which hastens climate change.

B)6) If you didn't do (B1) Prepare for the day that some Health Department will shut down your indoor residential wood burning because it harms the health of your near neighbors. Don't be surprised when that happens. The way to prepare is to stop burning wood now.