

Episode 41, September 30, 2022.

Episodes 41 A 1 through 2, Mary and Solar Energy Credit, and Mary and NordStream Natural Gas Leaks

Episode 41 A 1 of 2 Mary and Solar Energy Credit

Mary noted that with the new legislation's Residential Clean Energy Credit, you can subtract 30 percent of the cost of installing solar heating, electricity generation, and other solar home products from your federal taxes. This incentive could be the tipping point for consumers to switch to solar power. Mary received an email from her state Focus on Energy program which said "We put together the key details on [what the solar tax credit is](#), the eligible expenses for the solar tax credit, and other requirements and restrictions. What Is the Solar Tax Credit? If you install solar energy equipment in your residence any time this year through the end of 2032, you are entitled to a nonrefundable credit off your federal income taxes, equal to 30 percent of eligible expenses."

Episode 41 A 2 of 2 Mary and NordStream Natural Gas Leaks

Mary noted that it was likely that the Natural Gas Leaks of the NordStream pipeline from Russia to Scandinavia were caused by Russia under Putin's direction. That would be in line with Putin's other actions threatening energy security of nations supportive of Ukraine in Russia's war of aggression. Mary has been saying that Natural Gas is the cleanest fossil fuel that can be used as a "bridge" to the clean energy of Wind and Solar, to replace biomass (wood) burning for residential heating, for seventeen years. Highly polluting wood burning, whether it is in wood burning fireplaces, uncertified wood stoves, certified wood stoves, or wood pellet stoves, can be replaced by a "bridge" natural gas furnace for residential home heating. Mary calculated the CO2 emissions of Natural Gas allowing for a 3% leak rate (using Al Gore's statement that Methane Leak CO2 is 80% more harmful than the CO2 of coal emissions) is included, still only emits 51.20% of the CO2 that Coal emits. Mary also did a calculation from the chart from Families for Clean Air, which compared the weight of PM 2.5 emitted annually. The weights were one sixth of a pound for Natural Gas, 27 pounds for a wood pellet stove, 97 pounds for a certified wood stove and 244 pounds for an uncertified wood stove. Also, the Natural Gas weights would not increase over time, but wood burning emissions might very well increase over time, as wood stoves aged or were not maintained under laboratory conditions. Given the weights from the Families for Clean Air chart, a wood pellet stove emits 16,200 times more PM 2.5 than a natural gas furnace, a certified wood stove emits 58,200 times more PM 2.5 than a natural gas furnace, an uncertified wood stove emits 97,200 times more PM 2.5 than a natural gas furnace, and a wood burning fireplace emits 146,200 times more PM 2.5 than a natural gas furnace.

Episode 41 B 1 through 4, Wendy and Guatamalans burn plastic in their wood burning stoves, Petaluma, California, and Spokane, Washington wildfires, and Oakridge-Westfir, Oregon met N A A Q S based on a few large-scale monitors but there is no Natural Gas Infrastructure.

Episode 41 B 1 of 4 Guatamalans burn plastic in their wood burning stoves

Wendy noted that the University of California, Berkeley published a study Estimating Dioxin Exposure from Indoor Woodsmoke and the Burning of Plastics, in Guatemala. Wood for cooking, and heating is a fuel to a large portion of the world's population, often using inefficient unvented stoves indoors exposing many to very high concentrations of wood smoke. The components of the smoke include hundreds that are toxic and even carcinogenic. The daily intake fraction for a woman who cooks over an open fire yielded an intake that was in the range of international limits for dioxins and furans. The Berkeley study was about the impacts of indoor wood smoke from cooking for the past eight years in the rural highlands of Guatemala. Study leaders wrote "This research has provided a wealth of information about the impacts of wood smoke and the success of an improved stove as an intervention. During the time spent in Guatemala we have noticed the practice of adding plastic to a fire as means of waste disposal. The addition of plastic may increase the concentrations of dioxins. We will measure dioxin concentrations in a typical Guatemalan village kitchen from both wood and plastic combustion at varying ratios."

Episode 41 B 2 of 4 Wendy and Petaluma, California, wildfire

Wendy noted that the Petaluma, California wildfire burned 15 acres north of the city before slowing. The fire burned off the roads and no evacuations were necessary.

Episode 41 B 3 of 4 Wendy and Spokane, Washington wildfire.

Wendy noted, in Spokane, Washington, in the past few weeks, wildfire smoke was responsible for a drastic decrease in air quality, forcing Gonzaga University students and fellow Spokane community members to stay indoors and decrease outdoor activities. The air quality became a problem on Sept. 9 when PM 2.5 according to the Air Quality Index (AQI), broke 200. Extremely hazardous is an AQI of over 300. The Clean Air Agency has a network of regulatory grade air monitors, including five monitoring sites that monitor fine particles known as PM 2.5. According to a physician at Health and Counseling Services, the effect of inhaling smoky air is largely dependent on risk level. "There are certain people that are at higher risk for effects and symptoms," the physician said. "Those people would be anybody who's older and

anybody who's younger, children and infants." He also highlighted that people of all ages who have lung diseases such as asthma or C O P D, or cardiac diseases that cause problems with circulation face potential health effects. "People can have symptoms including shortness of breath, cough, chest tightness, wheezing, any of the symptoms that people would normally have with an asthma exacerbation," he said

Episode 41 B 4 of 4 Wendy and Oakridge-Westfir, Oregon, meets N A A Q S standards based on a few large-scale PM 2.5 monitors, but businesses take this as a green light to pollute more, with less regulations on industry in the future. Wendy noted that the federal status of Oakridge area air quality was upgraded Wednesday, a testament to years of work to reduce the output of smoke from the wood-burning stoves that are used in the area and kept air quality substandard. The U.S. Environmental Protection Agency now says the Oakridge-Westfir airshed meets the National Ambient Air Quality Standard (N A A Q S) for particulate matter under the Clean Air Act, which it hadn't been meeting before 2016, largely because of smoke produced by wood-burning stoves. Until its re-designation, the Oakridge-Westfir airshed was the only part of Lane County that didn't meet those standards. The Oakridge-Westfir airshed now is designated in "attainment" of federal standards, according to the EPA. The area's [EPA designation](#) had been "nonattainment" since 1987. Some of the business benefits for the area in meeting those federal standards include fewer regulations on industries operating in the Oakridge area and more opportunities to conduct prescribed burns meant to reduce wildfire risks. "There's less red tape around industry setting up shop in Oakridge. There's less things that have to be considered, less boxes that have to be checked off," a businessman said. "It does provide more flexibility for land managers around Oakridge to do things like prescribed burns to manage the forests." And, for Oakridge area residents, wintertime air over recent years has become easier and healthier to breathe. This EPA standard does not account for wildfire smoke. The news the EPA now considered the Oakridge-Westfir airshed to be within its standards may surprise area residents, who have since August suffered through unhealthy air quality because of smoke from the nearby Cedar Creek Fire and last year's Middle Fork Complex Fire. But the EPA has excluded from its compliance calculations some data points reflecting poor air quality caused by extraordinary events, such as wildfires, which can't be regulated by government agencies. Air quality in Oakridge was "hazardous" Friday morning and an air quality advisory remains in effect "until further notice" for the area because of smoke from the Cedar Creek Fire. "Just because the EPA says, 'We're not going to count this wildfire data and hold it against the community in terms of whether they're in attainment or nonattainment,' you still have to recognize that the community lives through that air quality and lives through that experience of really reduced air quality from wildfires," a Lane (County of the State of Oregon) Regional Air Protection Agency (L R A P A) representative said. "L R A P A completely expects to see more wildfires impacting not only Oakridge, but also impacting the Eugene-Springfield area." It took 'A lot of hard work to get to this point' Historically, the Oakridge area suffers from smoke most during winter months, when airflow often stalls and traps the smoke from wood stoves, used during power outages and used because there is no natural gas infrastructure. "It's nothing like our wildfire smoke, that's a whole other level. But the wintertime wood smoke can just get to the point where it hangs around for multiple days on end and without the relief we see in the summertime from breezes," said the executive director of South Willamette Solutions, the nonprofit that runs the [Oakridge Air](#) program. Meeting the [U.S. National Ambient Air Quality Standards](#), EPA's limits on six air pollutants including particulate matter, has required a communitywide effort, bringing together regulators, city officials, federal partners and local groups.

Episode 41 C 1 of 3 Noel and a New EPA office of environmental justice

Noel noted that on September 24, EPA Administrator Michael S. Regan announced that EPA is establishing a new national office charged with advancing environmental justice and civil rights. Warren County, North Carolina was the site of protests 40 years ago that launched the environmental justice movement. Attendees at the announcement were Peggy Shepard, co-founder and executive director of WE ACT for Environmental Justice, Dr. Beverly Wright, Founder and Executive Director, Deep South Center for Environmental Justice, Dr. Robert Bullard, Distinguished Professor of Urban Planning and Environmental Policy at Texas Southern University, Congressman G.K. Butterfield (NC), North Carolina Governor Roy Cooper, Senator Tom Carper, Chair of Senate Committee on Environment and Public Works (D E) who mentioned clean air, Chairman Frank Pallone, Jr., Chair of House Committee on Energy and Commerce (NJ), Senator Jeff Merkley, Chair of Senate Interior, Environment, and Related Agencies Appropriations Subcommittee (O R), Congresswoman Chellie Pingree, Chair of House Interior, Environment, and Related Agencies Appropriations Subcommittee (M E-01), Senators Cory Booker (NJ) and Tammy Duckworth (I L), Co-Chairs of the Senate Environmental

Justice Caucus who said our most toxic, polluting industries have been located next door to Black, Brown, Indigenous and low-income communities, Congressman A. Donald McEachin, Co-Chair of House Environmental Justice Task Force (V A-04), Congresswoman Nanette Diaz Barragán, Co-Chair of House Environmental Justice Task Force (C A-44), Congresswoman Pramila Jayapal, Co-Chair of House Environmental Justice Task Force (W A-07), Senator Dick Durbin (I L) who spoke about Breathing clean air, Dr. Margot Brown, Vice President of Justice & Equity at Environmental Defense Fund, and Leslie Fields, Sierra Club National Director of Policy, Advocacy, and Legal Defense. The Office of Environmental Justice and External Civil Rights, comprised of more than 200 current staff members in 10 U.S. regions, will merge three existing EPA programs to oversee a portion of Democrats' \$60 billion investment in the Inflation Reduction Act. The president will nominate an assistant administrator to lead the new office, pending Senate confirmation. Speakers at the event said, "In the past, many of our communities have had to compete for very small grants because EPA's pot of money was extremely small," and "We're going from tens of thousands of dollars to developing and designing a program that will distribute billions. But we're also going to be sure that this money goes to those who need it the most and those who've never had a seat at the table." Biden signed an executive order pledging 40% of the overall benefits from certain federal clean energy investments to disadvantaged communities overwhelmed by pollution. Rev. Dr. William Barber II, a prominent social activist and leader of the Poor People's campaign, said "This is about a lifestyle versus disability because when you poison the land and the water, you hurt people's everyday life." "Phenomenal," Dollie Burwell said of the prospect that such issues will become a cornerstone of an agency that for decades did not prioritize, or even always fully acknowledge, the nation's persistent environmental inequities. The formation of an Office of Environmental Justice and External Civil Rights will have hundreds of staff members placing the new office on par with the EPA's other core programs, such as those that oversee the nation's air and water regulations. The program will infuse equity, civil rights, and environmental justice into the Environmental Protection Office (E P A). "I can't tell you how much time we spent debating whether environmental justice, or environmental injustice, was a real thing," said a veteran activist for affected communities. "(The program will) become a part of the institutional fabric of EPA," she said. "It's going to take a hell of a lot to try to unravel that going forward." The government will invest in low-income and minority communities that have traditionally borne the brunt of pollution. The program will update aging drinking water infrastructure, cap leaking oil and gas wells, and clean up toxic pollution sites located near disadvantaged communities. The program will increase air-quality monitoring near schools and vulnerable neighborhoods. Environmental racism. Dollie Burwell, who was arrested at the Warren County dump in 1982 was at the ceremony. The program will combine three smaller midlevel offices of environmental justice, civil rights and conflict prevention and resolution. It will elevate environmental justice, the idea that all people have an equal right to protection from environmental and health hazards. Along with the 25-member White House Environmental Justice Advisory Council, the program will ensure disadvantaged communities receive 40 percent of the benefits from federal investment in clean air. This will be an office of environmental justice, charged with investigating and prosecuting violations of environmental laws.

Episode 41 C 2 of 3 Noel and a Virginia pregnant woman experiences cramping from PM 2.5 pollution  
Noel noted that a Virginia pregnant woman shared how the environment and climate could impact pregnant women. While vacationing by swimming in Lake Anna in Mineral, [Virginia](#) in the summer, the pregnant woman felt alright during the day. But that night was a different story. "I was in pain," the pregnant woman said. "It was stop-me-in-my-tracks, bend-over, intense cramping." The very air a pregnant woman breathes can be critical to her care. A study published by [The National Institutes of Health](#) found that carbon monoxide, cooking smoke and particulate matter were associated with a higher risk for stillbirth, and miscarriages. Particulate matter also known as PM 2.5 particles are extremely small and can be inhaled causing lung irritation and can be taxing for those who suffer with asthma and other [health issues](#). "It's biologically active in the placenta and as a toxicant it can just disrupt things," a doctor said. "It can interfere with the proper fetal placental exchange of oxygen and nutrients. It can create inflammation." A doctor said that pregnant women can protect themselves by avoiding prolonged activities outdoors when air pollution levels are high. As for the pregnant woman, going outside is a must as she already has a 4 year old son who enjoys trips to the park. But she's just a lot more careful and takes it one day at a time. "So, certainly, I'm planning our park trips for the morning, and planning to come home early midday, versus staying out most of the day," the pregnant woman said. The pregnant woman is a certified nurse midwife.

Episode 41 C 3 of 3 Noel and a New Yorker writes about wood burning in Germany from the points of view of a German doctor and a German ecologist

Noel noted a New York-based writer wrote that "more wood is being burned in Germany, this damages health and the environment". The New York writer noted that in Germany burning wood is considered cheaper than Natural Gas. More than a million households in Germany use firewood, and there are eleven million so-called single-room fireplaces. But "Nothing burns dirtier and more harmful to the climate than wood". Some consider the burning of wood to be a health hazard, such as a German worker from the Karlsruhe Institute of Technology (KIT). "Nothing burns dirtier and more harmful to the climate than wood," says the German worker. Burning wood would release many more pollutants than burning oil or gas, including carbon monoxide, nitrogen oxides, methane, and soot. According to the German Federal Environment Agency (UBA), almost half of the wood currently used in Germany is used to generate energy. Heating with gas, on the other hand, has lost some importance since the war in Ukraine. According to the German Federal Statistical Office, the number of approved residential buildings that primarily use gas as an energy source more than halved in the first half of 2022 compared to the first half of 2019. But the prices for firewood and wood pellets for stoves and heating systems are also rising sharply. The German worker calls it a "cardinal error" that wood energy in Germany is called climate-neutral, sustainable energy. The German Federal Ministry of Economics and Climate Protection also reports that the emission of air pollutants from wood firing is a problem. Therefore, the rules for keeping the air clean when installing and operating wood heating systems have been tightened again this year. The head of the German Department of Environmental Medicine and Health Assessment at the Federal Environment Agency, specifically warns of the health hazards caused by fine dust when burning wood. "In general and regardless of the source, the inhalation of fine dust leads to a relatively high burden of disease in the population." For example, cases of lung cancer, cardiovascular diseases and diabetes can be attributed to particulate matter. According to the doctor, between 2010 and 2018, an average of around 17,500 deaths per year were caused by particulate matter in Germany. Climate-neutral only under certain circumstances. So, should heating with wood be banned in the future, as some experts are demanding? After all, burning wood is not only dangerous for your health, environmentalists also warn of the consequences for forests. If a worker from the Eberswalde University for Sustainable Development, in Germany, has his way, the promotion of wood burning should be stopped immediately. Because burning trees is only climate-neutral under certain circumstances. "Approximately half of the carbon in forest ecosystems is in the soil," explains the ecologist. Drying out and warming favored the unwanted degradation of the carbon, which was then released as CO<sub>2</sub>. Secondly, the claimed climate neutrality applies at best over longer periods of time and under the condition that harvested trees really grow back. Even then, newly planted trees would only become carbon sinks with a time lag. Compensating for the "carbon debt" that has arisen will take at least decades. "But we need the immediate avoidance of additional greenhouse gases." The ecologist sees wood burning as a threat to the forests, which are in poor condition anyway. The productivity of the trees is falling as a result of the climate crisis and forest use. "So while the trees grow worse, we want to use more wood. A fatal combination," warns the forest expert. It was only in mid-September that the European Parliament voted to reduce the amount of wood that can be used to generate energy in the future and to restrict financial support from the state. However, the European Parliament voted that wood burning should continue to be considered a renewable energy source, despite evidence against that claim by scientists.

Episode 41 D 1 of 2 Island and a U K protestor was ejected from a Drax meeting

Island noted that a Climate campaigner was ejected from a U K Labour event sponsored by the Drax power plant firm. Activists interrupted the party conference debate to criticize Drax's wood-burning biomass operations. The Drax power station, in North Yorkshire, burns wood to generate electricity as part of its biomass operations. The owner of the North Yorkshire power station sponsored a debate on Tuesday on Britain's net zero climate goals on the fringes of the political party's conference in Liverpool. The company's group director of corporate affairs, Clare Harbord, was on the panel. Climate campaigners have accused [Drax](#) of greenwashing and argue that its biomass operations, which burn wood to produce electricity, are far from green and can even increase the CO<sub>2</sub> emissions driving the climate crisis. The Drax talk in Liverpool was titled "Reaching net zero: how can the UK boost energy security and invest in green jobs?" Several campaigners interrupted the discussion to question Drax's green credentials. One woman was forcibly removed from the room while she said: "How can you talk about net zero and green jobs as the UK's biggest carbon emitter and the world's biggest tree burner?" Another protester said: "As the largest carbon emitter in the UK, how can you talk about net zero and green jobs when you're responsible for the destruction of forests around the world?" Drax was accused of being part of a "culture of spin for climate criminals" by another audience member, who said: "How dare you be here, it's a disgrace." The incident happened a day after the [Guardian reported](#) that the UK government had been accused of funding environmental racism by giving £2 million a day in subsidies to an energy company that has paid out millions

over claims it breached pollution limits in the U S. Drax denies it committed any violations at its Louisiana plants, after agreeing to the settlements without accepting liability. An investigation by Unerthed, Greenpeace's investigative unit, found [Drax Biomass](#) paid millions of dollars to U S regulators over claims it exceeded limits on chemicals emissions at wood chip plants close to black and low-income communities. One person at the Liverpool event referenced the report and said: "All you are doing is pushing this so you keep on burning trees and polluting communities. You're polluting communities in southern America, in southern U S ... these are poor, mostly communities of color and you are polluting them." The panel was originally due to include Alan Whitehead, the shadow minister for the green new deal and energy, but the shadow business and industry minister Bill Esterson attended instead. Drax argues that its biomass is made from sawmill residues and low-grade wood left behind when forests are harvested for wood used in other sectors such as construction. Photographic evidence gathered by the Natural Resources Defense Council, Dogwood Alliance, Southern Environmental Law Center, and independent news agencies exposes logging in valuable forests and ecosystems in the U S Southeast, a designated global biodiversity hotspot. The U K is the world's largest consumer of imported wood pellets, as well as Europe's biggest subsidizer of biomass electricity, spending more than £1 billion per year to subsidize large biomass-burning power stations like Drax. The new documentary evidence reveals how hardwood forests are clear cut, with vast quantities of whole trees and other large-diameter wood sent to industrial mills to be manufactured into pellets to feed Drax's boilers. The biomass sourcing practices documented in the investigation are all allowed to continue under U K regulations and Drax's sustainability standards.

Episode 41 D 2 of 3 Island and Drax in the U K accused of driving "environmental racism" after further pollution claims against wood burning

Island noted that Drax, the company's formerly coal fired power station in North Yorkshire, U K, switched to mainly burning wood pellets in 2013. Drax accused of driving 'environmental racism' after further pollution claims against wood pellet mills in the U S deep south. The company billed as UK's 'largest source of renewable energy' has now been forced to make settlement payments for air pollution claims against three of its U S pellet plants, two of them are sited in poor, majority-Black communities. A Gloster, Mississippi, woman stands in front of the Drax plant Amite Bioenergy, which began operations next to her community in 2014. The company that runs England's enormous Drax power station has quietly agreed to pay out a further \$3.2 million to settle air pollution claims against its wood pellet factories in the United States' deep south, an Unerthed investigation has found. Late last month the company agreed two settlements of \$1.6 million apiece with the Louisiana Department of Environmental Quality (L D E Q), to settle a string of claims against two of its wood pellet plants in the state. It is the biggest settlement deal reached with the state's environmental regulator for at least ten years. The [settlements](#), which relate to claims dating back to 2019 against pellet plants in the small communities of Bastrop, Louisiana, and Urania, Louisiana, come after Drax was [fined \\$2.5m](#) for air pollution violations in the neighboring state of Mississippi. That fine was levied after a Drax pellet plant in Gloster, Mississippi, was found to be emitting well over the legally permitted level of volatile organic compounds (V O C's), a class of air pollutants linked to cancer, breathing difficulties, and [other health effects](#). Similar violations were at the center of the claims against the Louisiana pellet mills. Both the Gloster and Bastrop pellet mills are sited next to majority-Black communities with high poverty rates. American critics say that while Drax presents itself as green in the U K, its operations have driven "environmental racism" in the U S, allowing communities of color to be disproportionately exposed to polluting industries. The Gloster, Mississippi, trailer park community Blackmon Hole sits just meters away from Drax's Amite Bioenergy pellet plant. Drax, which [bills itself as the UK's largest source of renewable electricity](#), denies it committed any violations at its Louisiana plants. The company agreed to settlement payments without admitting liability. The company's formerly coal-fired power station in North Yorkshire switched to mainly burning wood pellets [in 2013](#), and is now one of Europe's biggest biomass power generators. Drax currently receives over £2 million a day in direct UK government subsidies for green energy, according to an analysis of financial results by [climate thinktank Ember](#). But there is growing scepticism among scientists about the classification of woody biomass as a source of green energy, with the European Academies' science advisory council [warning](#) that in most cases it is "not effective in mitigating climate change and may even increase the risk of dangerous climate change". Meanwhile, in the U S, there is rising scrutiny of the impact Drax's demand for wood pellets is having on vulnerable communities. A woman who is a member of the directors' board of the U S's National Association for the Advancement of Colored People (N A A C P), said it was "very unfortunate" that Drax's biomass use was "being billed as something great in one part of the world but is causing so much misery to people on the other side". "My message to the U K Government is that you are subsidizing

environmental racism,” she said. “You are subsidizing the harm of our planet. I would send an invitation to the U K Government to come to the U S and go to some of these communities where these plants are operating. It is not a safe environment. It is very harmful to these communities.” A woman who is executive director of the Dogwood Alliance, an environmental justice campaign group that works to protect forests in the Southern US, said using biomass for energy was a “false climate solution”. “We need people in the UK to be outraged about what’s going on right now,” she told Unearthed. “Because it’s accelerating climate change, it’s accelerating forest destruction”. The news of fresh sanctions against Drax’s U S operations comes as the U K government is reportedly attempting to renegotiate its deals with the company, in a move U K Members of Parliament [MPs have warned](#) could lock U K taxpayers into many more years of state support for the power station. Like nuclear, solar, wind and coal generators, Drax has enjoyed huge windfall profits this year, as soaring gas prices have driven up the cost of electricity. Prime Minister Liz Truss’ government wants to persuade the company to switch to less-lucrative deals, but M P’s have warned that the cost of doing this could be “locking in higher prices over the longer term and continuing excessive subsidies”. ‘It gets to the point where you can’t breathe’. The pellet plant sits in Gloster, a tiny town of just 1,356 people, where [77% of the residents are Black and 41% live below the poverty line](#). At its edge is Blackmon Hole, a Black-owned trailer park community that has only a fence and a pond separating it from Drax’s facility. “Drax needs to clean up their mess,” said a woman resident, who says her health began to decline five years ago. “We started getting sick after they put that plant down there and we didn’t know where it was coming from.” She suffers from asthma, chronic obstructive pulmonary disease (C O P D), and chronic bronchitis, and has to use medical oxygen, a nebulizer, an inhaler and a nasal spray to manage her conditions. “Sometimes I experience nose bleeding,” she added, “and when I gargle... I spit blood out.” A woman who is a nearby resident, said the air in the area can smell like “rotten flesh”. This resident, who also suffers from C O P D, said she noticed her health decline soon after she moved back onto her great-grandparents’ land in the area three years ago. “I mentioned to my husband on numerous occasions that there was something in the air, there had to be something in the air because my breathing was horrible, and it still is.” “We’re suffering, she added. “The smell is horrible. It gets to the point where you can’t breathe. You would have to smell it in order to know what it’s like.” A third resident, who lives closest to the plant, said that the air from the plant came over her community “as a steam”, and that her three children all suffered from allergies and bad coughs. “The air pollution in Gloster is very serious. You know, it’s noisy and there’s a lot of different things coming from over there flying in,” she said. “What are me and my kids inhaling? How long is it going to take for us to really figure out something is wrong with us?” An assistant professor in the epidemiology department of the Johns Hopkins Bloomberg School of Public Health said that any pollutant inhaled on a regular basis can increase the risk of respiratory disease, particularly asthma, and particularly in children. A resident concluded by saying, “I want to help others because it’s not all about me. It’s about the world and this community. The people in this community, the kids and the elderly can’t sit back and inhale toxic air and think that it’s okay. You gotta tell somebody. You gotta let them know, we need help!”

Episode 41 E 1 of 6 Gerda and Belorussian wood chopping to demoralize supporters of Ukraine in Europe Gerda noted a World Economic Forum poster who noticed that the president of a [country](#) supporting Russia’s invasion of Ukraine, and [weaponization](#) of energy no longer being supplied to Europe, recently [had himself filmed](#) chopping firewood. “Europeans won’t be left in the cold,” he said through a smirk. “Let’s help our brothers.”

[https://www.youtube.com/watch?v=lgezOs\\_omrE](https://www.youtube.com/watch?v=lgezOs_omrE) Belorussian Leader Alexander Lukashenko filmed himself chopping wood. This was meant to be demoralizing, to those in Europe who support Ukraine, who are now short of the cleanest fossil fuel, Natural Gas, a non-solid fuel. The Ukrainian-supporting European Countries may have only dirty fuels available, such as wood burning, to stay warm this winter, because of the shutoff of Natural Gas from Russia.

Episode 41 E 2 of 6 Gerda and the Air Quality Map of the European Environment Agency of the European Union is found at <https://www.eea.europa.eu/themes/air>

Gerda noted that ninety-six percent of Europe's urban population was exposed to fine particulate matter above the health-based guidelines set by the World Health Organization (W H O).

There is a new mobile app available for download. How clean is the air you’re breathing right now? How does the air in your city compare with that of a neighboring city or region? Air pollution is the single largest environmental health risk in Europe. The European Environment Agency's European Air Quality Index allows users to understand more about air quality where they live. Displaying up-to-the-minute data for the whole of Europe, users can gain new insights into the air quality of individual countries, regions and cities.

#### Episode 41 E 3 of 6 Gerda and in a Ukrainian town, the hardship of wood burning

Gerda noted that, in a Ukrainian town, scavenged wood is for the cooking fires and the smell of wood smoke fills the air. Rainwater is for showers and dishes. Almost nothing keeps out the autumn chill in homes without windows. A grad rocket exploded in a Ukrainian woman's yard. The house was damaged beyond recognition months ago. The town has had no gas, electricity, running water or internet since March. The woman carefully piled kindling, lit the fire and placed the kettle on the grate. Her 10-year-old deftly pulled out a finger length of cotton stuffing, twisted it and poured sunflower oil over it to soak on a plate. With a few wicks already in place from other nights, the makeshift oil lamp was almost bright enough to read by. The woman has no idea when her two older children can resume studies. "I can't predict what will happen next. Winter is the most frightening. We have no wood. How will we heat?" the woman asked. She had no answers.

#### Episode 41 E 4 of 6 Gerda and 48 arrested over France's summer forest fires

A wildfire near Belin-Beliet, southwestern France, in August 2022, was one of many. Police have arrested 48 people for allegedly starting forest fires in France during the summer, a spokeswoman said Friday, after a season marked by large, devastating blazes. Up to 10,000 French firefighters a day were mobilized this summer to fight fires that have ravaged more than 65,000 hectares, according to the European Forest Fire Information System, a record since the start of satellite data in 2006. Of the 48 arrested, 12 people have already been sentenced to two years in prison, while "more than a dozen" have been remanded in custody, said the national gendarmerie spokeswoman. "We found young people, minors, retirees, mostly men," she said, adding that the suspects came from all backgrounds. Some have "a weaker psychological profile, sometimes mental disorders," she said, adding that some were firefighters as well. According to the French National Forestry Office, nine out of 10 fires are of human origin and three out of 10 fires started on average are intentional. France's southwestern Gironde department, home to part of Europe's largest coniferous forest, was particularly affected with 30,000 hectares going up in smoke.

#### Episode 41 E 5 of 6 Gerda and Spain study in Rotterdam, the Netherlands shows PM 2.5 alters children's brain structures.

Gerda noted that the Barcelona Institute for Global Health (IS Global) published in the Journal Environmental Pollution a study of children aged 9 to 12, who were exposed to air pollutants in the womb and during the first 8.5 years of life. They found alterations in white matter structural connectivity in the brain. The greater the child's exposure before age 5, the greater the brain structure alteration observed in preadolescence. The study was led by the Barcelona Institute for Global Health (IS Global), a research center supported by the "la Caixa" Foundation. In addition to the association between air pollution and white matter microstructure, the study also found a link between specific exposure to fine particulate matter (PM2.5) and the volume of the putamen, a brain structure involved in motor function, learning processes and many other functions. As the putamen is a subcortical structure, it has broader and less specialized functions than cortical structures. The study found that the greater the exposure to PM2.5, especially during the first 2 years of life, the greater the volume of the putamen in preadolescence. "A larger putamen has been associated with certain psychiatric disorders (schizophrenia, autism spectrum disorders, and obsessive-compulsive spectrum disorders)," says a woman IS Global researcher and first author of the study. "The novel aspect of the present study is that it identified periods of susceptibility to air pollution" she goes on to explain. "We measured exposure using a finer time scale by analyzing the data on a month-by-month basis, unlike previous studies in which data was analyzed for trimesters of pregnancy or childhood years. In this study, we analyzed the children's exposure to air pollution from conception to 8.5 years of age on a monthly basis. Effects Observed Even at Pollution Levels Complying With European Union Standards. Another strong point of this study is that the data analyzed came from a large cohort of 3,515 children enrolled in the [Generation R Study in Rotterdam](#) (The Netherlands). To determine each participant's exposure to air pollution during the study period, the researchers estimated the daily levels of particulate matter (PM2.5) and PM2.5 absorbance at their homes during the mother's pregnancy and until they reached 8.5 years of age. When participants were between 9 and 12 years analyzed by age, they underwent brain magnetic resonance imaging to examine the structural connectivity and the volumes of various brain structures at that time. The levels of PM2.5 recorded in the present study exceeded the annual thresholds limits specified in the current World Health Organization guidelines (5 micrograms per meter cubed) but met European Union (EU) standards, an indication that brain development can be affected by exposure to air pollution at levels lower than the current EU air quality limit values. "One of the important conclusions of this study" explains a researcher "is that the infant's brain is particularly susceptible to the effects of air pollution not only during pregnancy, as has been shown in earlier studies, but also during

childhood.” “We should follow up and continue to measure the same parameters in this cohort to investigate the possible long-term effects on the brain of exposure to air pollution” concluded a second woman, an I S Global researcher and the last author of the study.

Episode 41 E 6 of 6 Gerda and a study in Middle East shows anthropocentrically-caused (human-caused, including residential wood burning-caused) illnesses from PM 2.5 on top of PM 10 Middle East Dust causes of human illness. Gerda noted that, In the Middle East, desert dust is assumed to dominate air pollution, being in permanent violation of public health guidelines. Gerda read a study that presented ship-borne measurements from around the Arabian Peninsula and modeling results to show that hazardous fine particulate matter is to a large extent of anthropogenic origin (9 greater than 90%), and distinct from the less harmful, coarse desert dust particles. Conventionally, it was understood that desert dust dominates both the fine and coarse aerosol size fractions, which obscures the anthropogenic signal. The researchers concluded “We find that the annual excess mortality from the exposure to air pollution is 745 (514 to 1097) per 100,000 per year, similar to that of other leading health risk factors, like high cholesterol and tobacco smoking. Furthermore, anthropogenic pollution particles account for a major part (around 53%) of the visible aerosol optical depth. Therefore, in the Middle East anthropogenic air pollution is a leading health risk and an important climatic factor. Above we demonstrated that, in particular over the region of the Arabian Gulf, the model consistently underestimates the concentration of a number of air pollutants, including PM 2.5, while performing well elsewhere in the Middle East and across different regimes of pollution.”

Episode 41 F Ishan and PM 2.5 causes Autism Spectrum Disorder and Lung Cancer

Episode 41 F 1 of 2 Ishan and Korea shows a causal link between PM 2.5 and Autism Spectrum Disorder (A S D) Ishan noted that short-term exposure to air pollution is associated with an increased risk for hospital admission for Autism Spectrum Disorder (A S D) in children, according to a study published online September 20, 2022, in the British Medical Journal (B M J Open). A researcher from the Ajou University School of Medicine Suwon, South Korea, and colleagues used data from the Korean National Health Insurance Service for 2011 to 2015 to examine the effects of short-term exposure to air pollution on hospital admission for Autism Spectrum Disorder (A S D) among Korean children of ages 5 to 14 years. Exposures were daily concentrations of fine particulate matter (PM2.5), nitrogen dioxide (NO2), and ozone (O3) levels in each region. The researchers found that the risks for hospital admissions for Autism Spectrum Disorder (A S D) were increased with PM2.5 levels at lag day 1, NO2 levels at lag day 5, and O3 levels at lag day 4. “These results emphasize that reduction of air pollution exposure needs to be considered for successful A S D symptom management, which is important with regard to quality of life and economic costs,” the authors wrote.

Episode 41 F 2 of 2 Ishan and India states air pollution causes lung cancer and proposes some mitigations Ishan noted that PM 2.5 are tiny particles present in the air, which when inhaled can cause inflammation in the lungs, which can lead to cancer. By eating healthy food, eating fruits, doing workouts, you might be thinking that you are taking full care of your health, but are you missing something very important? What does research say? According to research by the Francis Crick Institute, in 2019, more than three lakh [lung cancer](#) deaths worldwide were due to [air](#) pollution. A lakh is 100,000, so the research showed that more than 300,000 lung cancer deaths worldwide were due to air pollution in 2019. This research was done on 40 thousand people. In the research, scientists found that in areas where the amount of PM 2.5 was high, the rate of other types of [cancer](#) was also high. PM 2.5 are tiny particles present in the [air](#), which when inhaled can cause inflammation in the lungs, which can lead to cancer. These tiny particles can prove to be poison. 6000 [people](#) die every year in Britain. Research has found that about 6000 [people](#) who have never smoked die every year due to [lung cancer](#) in the UK. However, it is not that smoking does not cause [lung](#) cancer. Smoking is considered to be the biggest cause of [lung](#) cancer. But [air pollution](#) is also an important cause of this disease. Pollution is a big problem in India. In such a situation, how can you protect yourself from [lung cancer](#) or any other serious disease due to [air pollution](#) ? This question comes to everyone's mind. What did an All India Institute of Medical Science (A I I M S) [doctor](#) say about this? 1. [pollution](#) is at a higher level in the morning and evening, so instead of exercising in the open, it is better to do it indoors. 2. Take steps at your level to reduce [pollution](#), farmers should not burn stubble, [people](#) should also try to reduce the use of vehicles. 3. Do not smoke, do not use tobacco 4. Avoid going to high [pollution](#) areas 5. If you go to an area where [pollution](#) is high, then go with a mask. 6. Do not be careless. If you see any kind of symptoms, go to the [doctor](#) immediately. What are the symptoms of [lung](#) cancer? 1. Bleeding from the mouth when coughing 2. Weight Loss 3. Chest pain

Mary noted that the focus of Residents Against Wood Smoke Emission Particulates (RAWSEP) is on the health effects to near neighbors of living next to residential wood burning, in those hyper-localized areas where the source of particulate

pollution, PM 2.5, is concentrated. PM 2.5, particulate matter of 2.5 micrometer size, is the perfect size to infiltrate the human lung, causing a cascade of human health problems. Wood smoke consists of 90% PM 2.5. Residential PM 2.5 monitors can be purchased by neighbors from PurpleAir for less than \$300, and their locations are put on the online PurpleAir Map, along with data uploaded every 10 minutes, available to the general public, and of course to governmental authorities. Neighbors of Residential Wood Burners would like their PurpleAir PM 2.5 monitor data to be used to regulate and shut down Residential Wood Burning detected at neighbors' fence lines that exceeds the World Health Organization (W H O) standards of 5 micrograms per meter cubed or future US standards of 8 micrograms per meter cubed. There could even be court-ordered monitoring using a neighbor-owned PurpleAir PM 2.5 monitor as a "breathalyzer" (similar to car breathalyzers court ordered for repeat drunk drivers) to turn off the ignition of a neighboring indoor wood stove when levels of PM 2.5 in a near neighbor's yard is exceeded. In this way governmental authorities would not have to check the make and model of an appliance and would not have to rely on unreliable certification and other worthless assurances of levels of wood stove particulate emissions by the company that manufactured the wood stove. PurpleAir monitors also provide data every 10 minutes 24 hours a day, and data can be downloaded from the map by governmental authorities the day after the PM 2.5 levels are exceeded, during normal government working hours. PurpleAir PM 2.5 monitors are so reliable and accurate they are put on U S AirNow Smoke and Fire maps alongside \$100,000 Environmental Protection Agency (E P A) monitors, correlated to the EPA monitors with a simple mathematical formula. But to publicize this, it is necessary to point out that living hyper-localized next to a residential wood burner is essentially the same as living hyper-localized next to any kind of PM 2.5 emitting wood burning appliance, next to a PM 2.5 emitting wood burning wildfire or next to a PM 2.5 emitting industrial biomass (wood) burning facility.

Air [pollution](#) also causes [lung](#) Cancer...



