

In Episode 57CV 0 Introduction 1 Heat Pumps to replace indoor residential wood burning 2 World 3 United States 4 California 5 Colorado 6 Massachusetts 7 Wisconsin 8 United Kingdom 9 India 10 Southeast Asia 11 Thailand 12 PM2.5 and human health Main Content

0 Introduction **RAWSEP View** The United States government was on track in the Biden Administration to reduce the prices for both clean energy Heat Pumps and clean energy Electric Cars Trump tariffs are expected to upset those plans to prevent future air pollution and prevent climate change The United States Government should instead of certifying wood stoves as safe when they are not safe go forward with regulations that ban wood stove use and direct government money for use of forest refuse only for home building and furniture building for just a few examples of use of forest products for non burning uses It is well known from scientific and medical research that wood burning is a substantial source of PM2.5 emissions Yet the wood burning industry uses the scientifically debunked theory named Carbon Neutrality of Wood Burning to argue that wood burning replacing coal burning in industry and in a trickle down argument that wood burning should continue for home heating should continue presumably because it is called renewable Wood may be renewable in the sense that a tree can be planted in the place of a cut down burned tree but it takes centuries or decades for the newly planted tree to attain the stature of the cut down burned tree During those centuries or decades photosynthesis which converts CO2 to oxygen and so sequesters some carbon will not take place at the same rate as photosynthesis was performed previously And wood burning emits both CO2 and PM2.5 and PM2.5 is not absorbed by trees so PM2.5 is not diminished by planting a tree in the place of a cut down and burned tree In fact a living tree closes its pores against the presence of PM2.5 from nearby wood burning just as humans hold their breath in the presence of PM2.5 from nearby wood burning and when a tree closes its pores the level of photosynthesis that absorbs CO2 pollution goes down Wood burning emits 90% PM2.5 particulate matter of 25 micrometer size the perfect size to infiltrate the human lung setting off a cascade of human health problems and early deaths Contrary to many beliefs wood burning emits 2.8 times the PM2.5 as the fossil fuel coal burning and wood burning emits 450 times the PM2.5 as the fossil fuel natural gas burning Replacing coal burning with wood burning creates more air pollution in the form of CO2 and PM2.5 than coal burning This emission data comes from testing the cleanest burning wood stove in the United Kingdom the EcoDesign wood stove An international convention based on the scientifically debunked theory named Carbon Neutrality of Wood Burning The emissions from wood burning are erased from all countries around the world when calculating if each country has met its Climate Goals This non counting or erasure of wood burning emissions data from Climate Goals does not mean wood burning emissions do not exist Burning wood instead of coal increases the adverse health effects of PM2.5 air pollution and hastens climate change Stopping burning wood for residential home heating is an easy incremental way to be kind to your neighbor and to the planet Choosing to burn wood when burning wood when it is more expensive than heating your home with a Heat Pump that is less expensive when you use the United States Heat Pump Rebates available in 2025 in many states is like choosing a gas powered car above an electric car when both are of equal price Many of the Trump tariffs will result in less manufacture of clean electric vehicles in the United States and less price reduction to customers on existing electric vehicles



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1 Heat Pumps World Heat Pumps \$114 Billion Geothermal Heat Pumps Market Outlook 2025 2030
GlobeNewswire Demand for renewable heating solutions is increasing as governments and consumers
prioritize sustainable energy sources Geothermal heat pumps are \$114 Billion Geothermal Heat Pumps
Market Outlook 2025 2030 GlobeNewswire \$114 Billion Geothermal Heat Pumps Market Outlook 2025
2030 Expanding Interest in Off Grid and Independent Energy Solutions Understand the United States
Heat Pumps New research reveals heat pumps are 180% more efficient than outdated systems Yahoo
You can learn more about how heat pumps outperform traditional heating systems while boosting your
homes energy efficiency and storm resilience The United States Heat Pumps What Makes a Great
Residential Heat Pump? PCP Pros When it comes to heating and cooling there are many factors to
consider but I want to focus on heat pumps What should contractors look for in a United States Heat
Pumps Heat Pump Boom Faces Challenges Strong Policy Support Essential PR Newswire High energy
bills coupled with strong financial incentives are making heat pumps increasingly cost competitive with
traditional United States Heat Pumps It is So Easy to Install This Window Heat Pump I Saw at CES CNET
A white heat pump unit hanging below a window Gradients 120V All Weather Heat Pump can heat or cool
500 square feet of space and all it needs United States Heat Pumps Exploring Three Business Models for
Industrial Heat Pump Manufacturers RMI How industrial heat pump manufacturers can connect with
customers to demonstrate value and build partnerships to create market momentum United States Heat
Pumps UL Solutions expands testing for heat pumps PV Magazine UL Solutions says it will expand heat
pump testing at its facilities in Texas and Italy to meet rising demand in the heating ventilation United
States Heat Pumps This Window Heat Pump I Saw at CES Is Super Easy to Install CNET A powerful heat
pump for small spaces The All Weather model was designed to boost the heating performance of
Gradients primary model meant for United States The Cool Down The government wants to give you
\$1000 for a next gen heating system if you live in this area The Cool Down The utility said Springfield
residents may be eligible for a \$500 or \$1025 rebate for upgrading to an Energy Star air source or
geothermal heat pump Brand new heat pumps are \$10000 cheaper thanks to these government
incentives The Cool Down The Air Source Heat Pumps tax credit covers up to \$2000 and the Home
Efficiency Rebates program will cover up to \$8000 They are practically The Cool Down Under the Home
Electrification and Appliances Rebate homeowners can receive \$840 to put toward an Energy Star
electric heat pump dryer Whats more New research reveals heat pumps are 180% more efficient than
outdated systems The Cool Down As cold temperatures affect much of the US more people are looking
into highly efficient heat pumps to save money on utility bills Is your water heater on its last legs? This
next gen model could shave \$600 off your energy bills The Cool Down The scoop Heat pump technology
offers the same heating power as traditional methods such as gas flames and electric heating elements
However This simple appliance swap could make a serious dent in your energy bills The Cool Down The
government wants to give you \$1000 for a next gen heating system if you live in this area MSN rebate for
upgrading to an Energy Star air source or geothermal heat pump Instead of generating heat as a furnace
does heat pumps transfer heat Michigan Ann Arbor home energy rebate program expanding WEMU FM
heat pumps There are also rebate measures for induction cooktops and ranges and heat pump dryers
Office of Sustainability and Innovations Oregon Hold off on that new heat pump as Trumps freeze on
clean energy money sows uncertainty Oregon Live The Oregon Department of Energy is still figuring out
what to make of Trump executive order to freeze clean energy spending Canada British Columbia Guelph
New heat pump grant program now being offered by Enbridge Guelph News Guelph Today Enbridge is



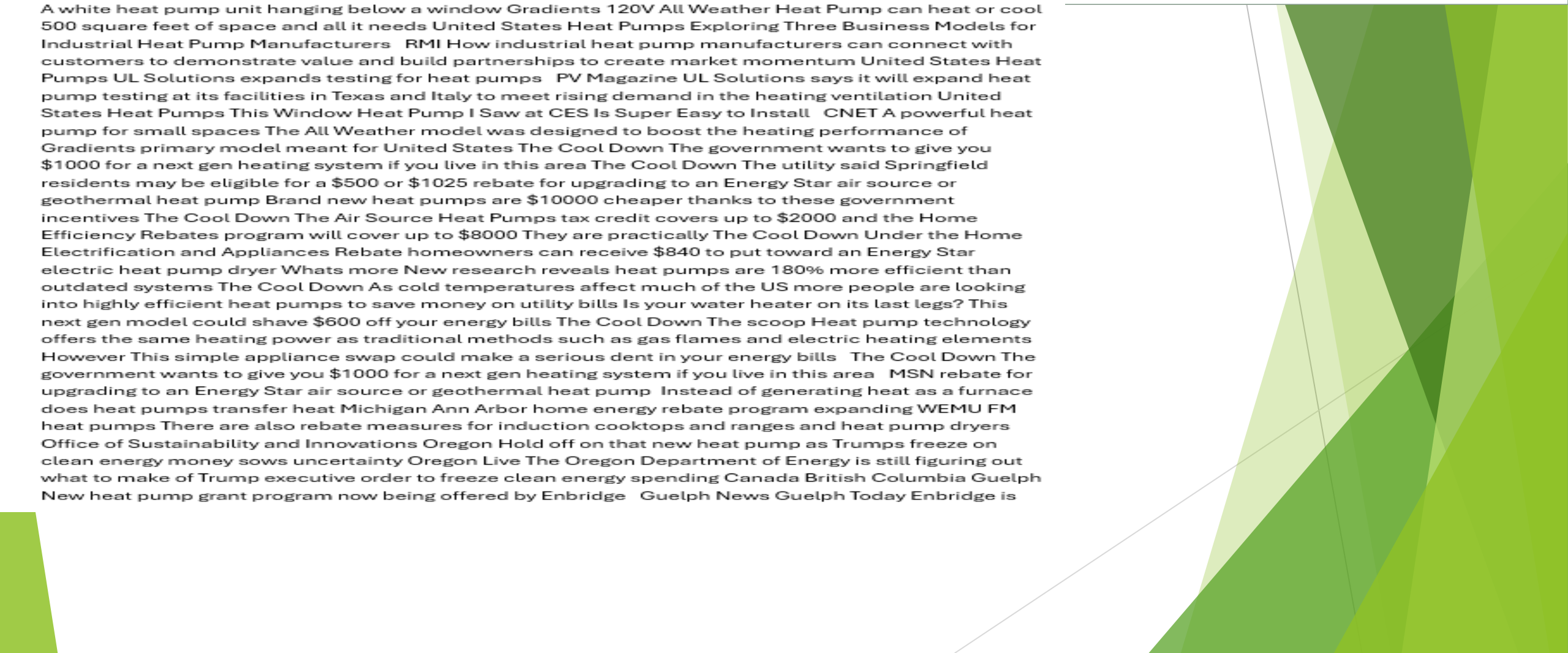
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the major driver of the program that offers a \$500 rebate per ton of heat pump installed They have also made it a lot easier to Canada Ontario Barrie Everything You Need to Know About Ontario Home Renovation Savings Program Heat Barrie Today The new Heat Pump Rebate making it more affordable to upgrade your homes heating and cooling system Whats Covered Under the Program? The HRS United Kingdom Heat Pumps Geothermal heat pumps are crazy efficient Should you get one? Canary Media heat pump unit down stairs behind double A worker ushers the indoor unit of a ground source heat pump to its clean heating destiny Dandelion 2 World Impacts of Changes in PM 2.5 Concentrations and Their Major Components on Blood ScienceDirectcom Sulfate nitrate ammonium organic matter and black carbon account for more than two thirds of the total mass of PM2.5 and have stronger World Impact of monthly air pollution and weather conditions on cardiorespiratory mortality in Nature Additionally high PM2.5 and CO levels were linked to increased CARDIO in LMA On the other hand PM10 PM2.5 sulphur dioxide SO2 NO2 CO and O World PM 2.5 concentration simulation by hybrid machine learning based on image features Frontiers Abstract Air pollution significantly impacts human health making the development of effective pollutant concentration assessment methods crucial 3A United States Substack Letters from an American **Excerpts edited by RAWSEP for brevity and clarity and relationship to Residents Against Wood Smoke Emission Particulates a 501c3 nonprofit organization** Heather Cox Richardson February 3 2025 I am going to start tonight by stating the obvious the Republicans control both chambers of Congress the House of Representatives and the Senate They also control the White House and the Supreme Court If they wanted to get rid of the United States Agency for International Development USAID for example they could introduce a bill debate it pass it and send it on to President Trump for his signature And there would be very little the Democrats could do to stop that change But they are not doing that Instead they are permitting unelected billionaire Elon Musk whose investment of \$290 million in Trump and other Republican candidates in the 2024 election apparently has bought him freedom to run the government to override Congress and enact whatever his own policies are by rooting around in government agencies and cancelling those programs that he personally dislikes The policies the MAGA Republicans say they want are unpopular with Americans in general and even with most Republican voters By letting Musk make the cuts the MAGA base wants they can both provide those cuts and distance themselves from them But permitting a private citizen to override the will of our representatives in Congress destroys the US Constitution It also makes Congress itself superfluous And it takes the minority rule Republicans have come to embrace to the logical end of putting government power in the hands of one man The Musk team in the so called Department of Government Efficiency or DOGE has taken control of the US Treasury payment systems that handle about \$6 trillion in annual transactions for the US government thus gaining access to Americans personal information as well as information about The Musk competitors From there Musk claims to have been cancelling those transactions he thinks are wasteful He claims for example to have deleted the popular Internal Revenue Service IRS Direct File system that enabled people to file their taxes online for free without the help of paid tax preparers The Musk team apparently consists of six engineers aged 19 to 24 who are taking control of the computers at government agencies From the Treasury Department they went on to the US Agency for International Development which receives foreign policy guidance from the State Department Their breaching of the computers there compromises our national intelligence systems They are shuttering agencies and sending employees home in order to create the illusion that they are saving money in order to pass a giant tax cut for billionaires and corporations Any news outlet reporting Mexico



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conceded anything to Trump to get him to delay tariffs has not done its homework Trump boasts he got Mexico to commit to stationing 10K troops at our border Apparently he did not realize Mexico already has 15K troops deployed there[] The crisis at the northern border worked out in a similar fashion After conferring Prime Minister Justin Trudeau and Trump announced a 30 day pause in the implementation of tariffs Trudeau agreed to appoint a border czar and to implement a \$13 billion border plan that Canada had announced in December In other words while Musk was causing a constitutional crisis Trump created an economic crisis that threatened both domestic and global chaos then claimed Biden administration achievements as his own and declared victory The tariffs on Chinese goods went into effect as planned China has promised to levy tariffs of up to 15% on certain US products beginning a week from today 3B United States Even low levels of traffic air pollution can damage the liver new study shows US Right to Know Mice exposed to fine particulate matter PM2.5 or tiny pollutant particles of 25 micrometers or less for 12 weeks showed inflammation in the 4 California How wildfire smoke is poisoning cities months after skies clear Study Finds Exposure to the chemicals in wildfire smoke are harmful to human health long after the smoke clears wood burning event possibly something as California Los Angeles Wood burning ban extended through Monday for much of southland NBC Los Angeles A ban on indoor and outdoor wood burning has been extended through tomorrow for much of the Southland due to a forecast of high air pollution in California Los Angeles Enacts Weekend Wood Burning Ban to Shield Residents from Poor Air Quality Risks Hoodline Los Angeles has a mandatory wood burning ban due to poor air quality affecting indoor and outdoor devices except in certain areas California Monterey Fine Particulate Matter Sensor Network Information and Resources Monterey Bay Air Monterey Bay Air Resources District Full Coverage California Pasadena AQMD Orders Health Related Wood Burning Ban to Go into Effect Saturday Pasadena Now wood burning The residential ban affects all those in the South Coast Air Basin which includes Altadena and Pasadena Homes that rely on wood as California Southland Wood Burning Ban Extended Through Monday for Much of Southland MyNewsLacom NewsBreak A ban on indoor and outdoor wood burning has been extended Monday for much of the Southland due to a forecast of high air pollution in the area 5 Colorado Summit County Fire officials plan controlled burns throughout Summit County this week SummitDailycom Smoke from prescribed fires has the potential to impact human health For additional information visit CDPHEColoradogov/indoor air quality/wood 6 Massachusetts The health impacts of wildfires Frequently asked questions Harvard TH Chan School of Public Health Harvard University The AQI measures ground level ozone particulate matter fine PM2.5 and coarse PM10 carbon monoxide sulfur dioxide and nitrogen dioxide 7A Wisconsin Fort Atkinson fire chief issues burn ban for department jurisdiction MSN Ways To Increase the Heat From Your Wood Burning Fireplace The Family Handyman Ways To Increase the Heat From Your Wood Burning Fireplace 7B Wisconsin Madison Trumps federal aid freeze could hurt Head Start health centers more **Excerpts edited by RAWSEP for brevity and clarity and relationship to Residents Against Wood Smoke Emission Particulates a 501c3 nonprofit organization** Capital Times February 4 2025 Trump has said his controversial freeze of federal funding last week was aimed at eliminating spending that goes against his agenda of purging diversity equity and inclusion practices from government operations But his pause in federal grants and loans could hurt a far broader range of programs in Wisconsin from domestic violence and sexual assault shelters to public health centers An initial announcement last Tuesday causing concerns over whether programs like Medicaid and food stamps The next day the Trump administration said it was rescinding the memo that set off those fears



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but the White House soon followed that message with one suggesting the temporary funding freeze would go ahead as planned And a federal judge in Washington DC who halted the freeze last week signaled late Monday that she plans to extend the injunction as states legal experts and individual organizations work to figure out how a pause in funding would harm day-to-day operations of research groups nonprofits and social services The impact in Wisconsin could be widespread In fiscal year 2024 the annual budget period that ended in October various programs in Wisconsin received \$110 billion in federal payments grants contracts and other funding The federal government gave \$5 million to the Wisconsin Department of Justice Community health centers In fiscal year 2023 The federal government awarded \$48 million in grants to Wisconsin community health centers The funding came in federal 330 grants to help community health centers provide medical care to communities located in health care deserts Last fiscal year the federal government approved nearly \$237 million in small business loans for projects in Wisconsin This With more \$71 million in loans typically used for buying a business or construction projects US Rep Mark Pocan a Democrat who represents the Madison area last week accused the president of causing chaos with the funding freeze Trump loves chaos but chaos is not governing There's a difference Pocan told reporters Thursday It may have worked well when he did Celebrity Apprentice It does not work so well when you are the 47th president of the United States 8 United Kingdom Firefighters issue safety warning after rise in wood burning stove incidents Yahoo News UK The Fire Service issued a safety warning after a rise in incidents involving wood burning stoves United Kingdom Joint effects of temperature and humidity with PM 2.5 on COPD BMC Public Health BioMed Central Particulate matter less than 25 microns in aerodynamic diameter PM2.5 is a significant air pollutant known to adversely affect respiratory United Kingdom Manchester No wood burning stove fines despite 400 complaints BBC News There have been no fines handed out in Greater Manchester to people using wood burning stoves despite more than 400 complaints in a year Health United Kingdom Why council has branded woodburners cozy killers Yahoo News UK Homes burning wood on a chilly evening often results in children walking to school the following morning breathing harmful air I am sure that is It is about letting people know the harmful impact of domestic wood burning And that harmful impact is clear There is a scientific and academic United Kingdom Why the wood burning stove in your house could be as bad for you as smoking The Telegraph A found that burning wood in our homes is one of the most dangerous types of air pollution Here is what you need to know 9 India WEB Indian Express Wood burning stoves serious problem for your health environment Facebook Read here <https://indianexpress.com/article/lifestyle/food-wine/wood-burning-stoves-serious-problem-health-environment> 10 Southeast Asia Fine particle pollution persists in January 2025 A hazy start to the year for South and Southeast Asia Copernicus Atmosphere Monitoring Service Fine particulate matter smaller than 25 micrometers is considered one of the most dangerous air quality hazards since PM2.5 has the potential to 11 Thailand NASA confirms PM2.5 dust in Northern Thailand is caused by burning Nation Thailand The initial analysis presented at the ASIA AQ Science Team meeting revealed that biomass burning is a key factor contributing to PM 2.5 dust pollution Thailand Bangkok PM 2.5 levels in Bangkok continue to impact residents health Nation Thailand Air pollution continues to plague much of Thailand with increased hotspots detected in neighboring countries The PM 2.5 levels in Bangkok on 12 PM2.5 and dementia Long Term Wildfire Exposure Is Linked to Dementia Risk Neurology Advisor Long term exposure to wildfire and non wildfire fine particulate matter PM2.5 is associated with dementia according to a study published



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