



DESERT BREEZE

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Residential Wood Smoke



As the weather cools, many Eastern Kern residences turn to wood burning to heat their homes. Oh, what a joy a fire can provide, the warmth and that sweet aroma of burning wood. The smell of wood smoke can evoke fond memories and add to holiday cheer, but do you know what makes the smoke smell so sweet? Wood smoke contains a complex mixture of fine particulate matter (PM₁₀), volatile organic compounds (VOC), carbon monoxide (CO), and toxics such as benzene, toluene, and aldehyde gases.

***Did you know?** Wood burning in the U.S. produces about 350,000 tons/year of fine particulate matter 10 micrometers in diameter and smaller? PM₁₀ poses the greatest health risks because it can get deep into the lungs causing irritation and blockage.*

During the winter months, people tend to spend a great deal of their time indoors. If your home is heated with wood, you are potentially exposing you and your family to harmful PM₁₀ emissions if you are not burning efficiently. Numerous scientific studies link PM₁₀ exposure to a variety of respiratory problems such as chronic bronchitis, asthma, decreased lung function, airway inflammation, and irritation (cough, wheezing, etc.).

***Did you know?** In addition to the smoke that can be released inside your home, an estimated 70 percent of smoke from chimneys can reenter the home and other neighborhood dwellings.*

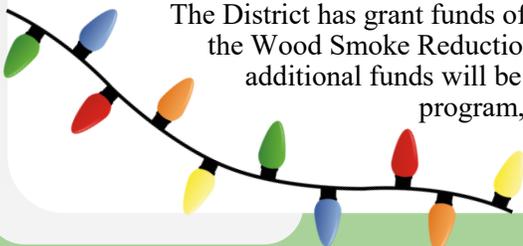
You can dramatically reduce PM₁₀ from your wood burning device by replacing your old inefficient woodstove or retrofitting your fireplace with an EPA-certified woodstove/insert. Additionally, you can switch to a pellet stove/insert or to a cleaner burning fuel such as natural gas or propane. Replacing an old woodstove, installing an EPA-certified fireplace insert, or switching to a cleaner fuel can reduce PM₁₀ emissions by up to 70 percent. Remember to always burn clean, properly dried, stored, and seasoned wood. Maintain a hot fire and never burn household waste in your woodstove or fireplace.

***Did you know?** Each old woodstove replaced is equivalent to eliminating particulate emissions from five old diesel buses.*



The District has grant funds of up to \$4,000 available to replace your old wood burning device through the Wood Smoke Reduction Program (WSRP). Currently, funds have been depleted, however, additional funds will be available in October, 2020. Please be aware, due to the popularity of the program, funds will be depleted quickly. More information can be found on the District's website: www.kernair.org or by calling (661) 862-5250.

By: Jeremiah Cravens



DRIVING SAFELY IN FOG

As we approach the holiday season and the temperature drops from its summertime highs (a merciful reprieve for many of us), a familiar hazard to those on the road re-emerges. Moisture in the air condenses in these cooler temperatures, which creates fog that can significantly reduce visibility and alter your perception of how fast you are traveling. Multi-vehicle collisions are not uncommon due to these hazards. Fortunately, there are good habits you can practice to reduce the risk to you and your vehicle when driving in fog:

- ◆ Reduce vehicle speed
- ◆ Maintain more distance between you and car in front of you
- ◆ Check your mirrors before slowing down, and use your brakes gently
- ◆ Utilize windshield wipers and defroster
- ◆ Don't use your high beams
- ◆ Use the right side of the road to guide you
- ◆ Reduce in-vehicle distractions (turn radio and cabin lights off; consider opening a window)
- ◆ Don't focus on the lights of vehicle in front of you



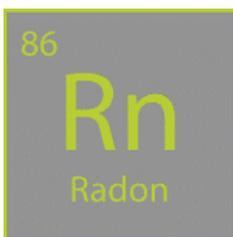
ELECTRIC VEHICLES, PART 4 OF 4

VELOZ has a search tool online with filters containing basic information on currently available models of Fuel Cell Electric Vehicles (FCEV), Plug-in Hybrid Electric Vehicles (PHEV), and Battery Electric Vehicles (BEV). To the right, you can see how the tool can be used to identify a vehicles approximate after-incentives price range, and EPA published range of Battery Electric Vehicles (2019 and older models, not 2020 models). This tool may be useful, for example, for someone who thinks price and range (mileage per charge) are most important. Please note that not all vehicles will be sold for the Manufacturer's Suggested Retail Price (MSRP); and, not all shoppers will be eligible for all incentives. This sample is provided for informational purposes only. The following information is obtained from electricforall.org. *By: Brenton Smith*

Battery Electric Vehicles	ENTRY	MID	WOW!	EPA Published Range (Miles)
Audi e-tron			∞	204
BMW i3		\$\$\$\$\$		153
Chevrolet Bolt EV		\$\$\$\$\$		238
Fiat 500e	\$\$\$			84
Ford Mustang Mach E		\$\$\$\$\$		300
Honda Clarity Electric	Very limited supply available for lease only in California and Oregon			89
Hyundai Ioniq Electric	\$\$\$			124
Hyundai Kona Electric	\$\$\$			258
Jaguar I-Pace			∞	234
Kia Niro EV	\$\$\$			239
Kia Soul	\$\$\$			111
Nissan Leaf	\$\$\$			150
Nissan LEAF PLUS	\$\$\$			226
Smart fortwo electric	\$\$\$			58
Tesla Model 3 Long Range AWD		\$\$\$\$\$		310
Tesla Model 3 Performance AWD		\$\$\$\$\$		310
Tesla Model 3 Standard Range Plus		\$\$\$\$\$		240
Tesla Model S Long Range			∞	370
Tesla Model S Performance			∞	345
Tesla Model S Standard Range			∞	285
Tesla Model X Long Range			∞	325
Tesla Model X Performance			∞	305
Tesla Model X Standard Range			∞	255
Volkswagen e-Golf	\$\$\$			125

Vehicle Cost After Incentives:	Symbol:
Less than \$30,000	\$\$\$
Between \$30,000 and \$50,000	\$\$\$\$\$
More than \$50,000	∞

POLLUTANT OF THE QUARTER: RADON



Radon (Rn) is a basic chemical element with atomic number 86. Radon at room temperature is a radioactive, colorless and odorless gas. Long term exposure to large amounts of radon causes radon poisoning, which has been linked to cause cancer. Radon is formed by the natural radioactive decay of uranium in rock and soil. Once produced, radon gas moves through the ground essentially making its way to the air above. However, some radon remains below the surface and dissolves in water that collects and flows in underground aquifers and geothermal springs. Unless you test for it, there is no way of knowing whether radon is present in the atmosphere. Fortunately, often enough the solution to radon might be simpler than you think.

Why does the District care about Radon?

Radon has very specific properties that make it become airborne during its decaying process. According to the National Radon Program Services (NRPS) webpage, provided by the US EPA and Kansas State University, Radon has a half-life of about four days. That means it takes four days for the level of radon to reduce to half of its initial value. Although short lived, during its radioactive decay, radon releases ionizing radiation in the form of alpha particles. It also produces short-lived decay products, called progeny or daughters, some of which remain radioactive. The progeny or daughters are not gases and can easily attach to dust and other particles. Those particles can then be transported by air and can also be breathed in by individuals. Therefore, the Environmental Protection Agency (EPA) and the California Air Resources Board (CARB) has listed radon and its decaying products as a toxic air contaminant for which emissions must be quantified through CARB's AB 2588 Air Toxics "Hot spots" program. The Eastern Kern Air Pollution Control District (District) has been mandated to assess toxic air contaminant emissions including radon within our jurisdiction through the AB-2588 program. For more information on AB 2588 see the Cancer and Air Pollution article in the December 2018 Desert Breeze publication. You can find all issues of the Desert Breeze at our website www.kernair.org, under the "Information" tab.

Exposure Levels

The EPA has reviewed several factors and has determined to set a recommended action level for radon. The EPA requires mitigation action to be taken for levels of radon above 4 pCi/L. Radiation from radon is expressed in units of picocuries per liter of air (pCi/L). A pCi is a measure of the rate of radioactive decay of radon. One pCi is one trillionth of a Curie or 0.037 disintegrations per second.

How does radon get into your home?

According to the EPA, nearly one out of every 15 homes has a radon level considered by the EPA to be elevated (4 pCi/L or greater). As mentioned before, radon gas is produced underground from the decay of uranium contained in rock and soil. Thus, radon and other gases rise through the soil and are trapped under the building. The trapped gases build up pressure. This pressure is higher than the pressure inside your house. Therefore, the higher pressure under the building forces gases through cracks in the floors and walls and into your house. Once inside, the radon can become trapped and concentrated.



The EPA maintains an interactive map of radon levels for different zones throughout the country. This can be found at www.epa.gov/radon and click on the "Find Local Radon Zones and State Contact Information" link. According to this interactive map, Eastern Kern County has been listed as a zone with predicted indoor radon screening levels between 2 to 4 pCi/L. The EPA recommends that all houses, regardless of what radon zone the house is located in, be tested for radon before purchasing. This can be done by a certified inspector or professional. Additionally, the EPA has do-it-yourself radon testing kits available to the public for purchase through their National Radon Program Service at <https://sosradon.org/test-kits>

How radon can be mitigated in your home

Fortunately, for areas of low radon concentrations, sealing cracks and other openings in the floors and walls of your home is often enough to reduce radon entry into your home. However, for areas of medium or elevated radon concentrations, the EPA does not recommend the use of sealing alone to reduce radon because sealing alone has not been shown to lower radon levels significantly or consistently. Additionally, it is difficult to identify all the places where radon is entering. Through the years, normal settling of your house opens new entry routes and reopens old ones. However, an experienced contractor that is trained in radon mitigation should be able to help if elevated levels have been found.

By: Miguel Sandoval

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Board of Directors usually meet once every two months starting in January at the Tehachapi Police Department Community Room.

Air Pollution Control Officer

Glen E. Stephens, P.E.

Hearing Board Members

William Deaver
Doris Lora
Chris Ellis
Charles Arbaut
John Hayes



For news updates and other information, please visit the Eastern Kern APCD website at www.kernair.org

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