



DESERT BREEZE

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The Construction of Solar Farms and Air Quality

As a regulator for the Eastern Kern Air Pollution Control District, I come in contact with the solar farm industry (during construction) on a frequent basis. Usually this contact has been when the construction process meets up with a wind event (35+ mph and from upwind of populations). Depending on the location, these wind events can wreak havoc on the residential community, with hundreds of people in the pathway and thousands residually. There have been occurrences where huge dust clouds have accumulated over major portions of the Antelope Valley, particularly along the Highway 138 corridor and notably along Highway 14. Some of the dust emanates from abandoned fallow farm land and fine silt in the drainage areas, but the majority is from solar farm construction.

During the past 2 to 3 years, there has been a surge of solar farm projects in our desert. In addition to the existing solar farm projects, there are many more that are “in the pipeline” in various stages of planning and approval. Because of grants, energy tax credits, property tax exemptions, sales and use taxes, and Renewable Portfolio Standards (mandates energy suppliers to increase renewable energy production), solar farms are



going to proliferate all over our desert.

What are we to do? As an Air Quality Specialist, I typically get involved after the occurrence of a wind/dust event, precipitated by numerous complaints from the community. At this point little can be done. We can take enforcement action (issue Notice of Violation) against the solar farms, but that doesn't solve the problem; the damage is already done. In all fairness, the contractors have reacted to wind episodes with good effort, but the forces of Mother Nature have been too strong. We need to solve this problem before construction begins.

For effective dust mitigation during construction, there

needs to be a coordinated effort between all involved, including: planning and building departments, environmental scientists, health scientists, the community, public officials, air pollution con-



trol district, developers, contractors, and any other invested persons. The dust control mitigation mechanisms that have been suggested include:

- Staged development – where the size of each phase is limited to where localized dust suppression is feasible (i.e. water trucks & other dust inhibitors can be applied to source effectively)
- More stringent and detailed dust control plans
- Well thought out zoning criteria
- Limits on vegetation removal
- Spacing permits to decrease the number of projects occurring at one time
- Community oversight
- Require air monitoring up wind and downwind (during and after construction)
- Air District permitting of solar farms (not currently required)

Some of these suggestions are already in action. I've met with community members, contractors, and government officials, and I believe that all those involved have good intentions. It's going to take hard work, creativity, painstaking cooperation and responsible coordination. The desert community is our customer whom we are supposed to serve. We owe them clean air.

ELECTRIC VEHICLES (EVs)

Electric vehicles (EVs) are vehicles (cars) that solely operate on electricity. A gasoline or diesel internal combustion engine (ICE), such as required in a hybrid vehicle, is not part of an EV's drivetrain. Propulsion is provided by an electric motor (or motors) powered by self-contained rechargeable battery packs. The electric motor gives an EV instant torque, creating strong and smooth acceleration. In addition to passenger vehicles, there are fleets (UPS to mention one) that utilize electric vehicles.

EVs have been gaining popularity over the past few years primarily due to surging fuel costs. Major technological advances in battery efficiency, which greatly increased driving range and decreased charging time, in addition to EVs producing no direct emissions also contribute to attracting new owners. Other EV



Nissan Leaf



Tesla Model S Sedan

offers buyers a wide variety of vehicles that range from a frugal Nissan Leaf (starting at \$28,800), all the way up to an award-winning luxurious and sporty Tesla Model S sedan (starting at \$71,070). There are approximately 30 different EV models currently available in the US.

advantages over ICE powered vehicles include: Smooth quiet operation that requires less maintenance. There are no oil changes or tune ups, EVs have 10 times fewer moving parts than an ICE powered car. There is no engine, transmission, spark plugs, valves, fuel tank, tailpipe, distributor, starter, clutch, muffler or catalytic converter. EVs are more energy efficient and convert about 59–62% of the electrical energy from the grid to power at the wheels; conventional gasoline vehicles only convert about 17–21% of the energy stored in gasoline to power at the wheels.

Every major car manufacturer and about a dozen start-up companies have announced plans for developing an EV. The ever-expanding EV market



INDOOR AIR QUALITY

Winter in Eastern Kern County can be very cold; forcing most of us to spend much of our time indoors. The air we breathe in our homes, schools, and offices can often include pollutants that may be harmful to our health. Pollutants that can be harmful to your health include chemicals, particulate matter, and mold.

Some pollutants cause sore eyes, burning in the nose and throat, headaches, or fatigue. Others cause or worsen allergies, respiratory illnesses (such as asthma), heart disease, cancer, and other serious long-term conditions. Sometimes individual pollutants at high

concentrations, such as carbon monoxide, cause death.

Understanding and controlling some of the *common pollutants* may help improve your indoor air and reduce risk of health concerns related to indoor air quality.

Secondhand Tobacco can be a major indoor air pollutant. It contains some 200 known poisons including: nicotine, formaldehyde, ammonia, and carbon monoxide, and at least 69 chemicals known to cause cancer.

Combustion Pollutants are gases and particles generated

from burning materials. Often improperly vented fuel-burning equipment (e.g. furnaces, space heaters, and hot water heaters) can generate high levels of carbon monoxide and particulate matter that can be harmful and cause death. Additionally, properly ventilated wood burning stoves, fireplaces, and heaters will increase indoor particulate matter emissions that is harmful to the lungs. Cleaner fuels (propane and natural gas) minimize health effects; however, oil and wood burning, inherently, have more harmful effects. Burning of plastics should be

avoided because of possible harmful effects.

Volatile organic compounds (VOCs) are chemicals that can be found in many products including: cleaning supplies, pesticides, air fresheners, and many aerosol spray cans. Many products used in the home can be harmful in large doses.

IMPROVING YOUR INDOOR AIR – Generally, the most effective way to improve indoor air is to eliminate individual sources or reduce their emissions. Therefore, minimize smoking indoors, use cleaner fuels for indoor heating and cooking, and minimize use of indoor chemicals will improve your indoor air quality.

Ventilating: Increasing the amount of fresh air brought indoors helps reduce pollutants inside. When weather permits,

open windows and doors, or use your air conditioner to assist in ventilating the indoors. Bathroom and kitchen fans that exhaust to the outdoors increase ventilation and help remove pollutants. Always ventilate when using VOC products and be sure to close product lids tightly.

Changing filters regularly: Central heaters and air conditioners have filters to trap dust and other pollutants in the air. Be sure to change or clean the filters regularly.

Your indoor air quality is an important part of healthy living. Using these helpful suggestions will make your indoor space safer and can keep you healthier during the fall and winter months.



projects, such as new residential subdivisions, new industrial areas or modified land-use changes, for example a housing development close to a railroad. The purposes of CEQA are to establish environmental protection, require agencies to avoid or reduce potential damages (or impacts), foster interagency communication and coordination, enhance public participation and provide governmental agencies a venue to explain reasons why potential impacts may occur.

The regulation requires a lead agency, such as the planning department, special district or air quality district, to create a document describing the project in detail and associated impacts to the surrounding community. Depending on the expected impact three different types of basic documents can be created: a Negative Declaration (ND), a Mitigated Negative Declaration (MND) and an Environment Impact Report (EIR). The preparation of an ND, MND or EIR usually begins with an Initial Study. The Initial Study is used to determine where potential environmental impacts may occur. The environmental document may discuss the potential impact to the environment in three different areas: physical, cultural and social. Physical impacts involve water quality and quantity, air quality, geology/soils/seismic, paleontology, biologic, hazardous materials, energy use and mineral use. Potential cultural impacts are within the realms of visual/aesthetics, transportation/traffic, archaeology/historic resources, public services, utilities, recreation and agriculture. Impacts in the area of social environmental concerns consists of land use planning and regional development policies, crime, housing and economy.

CEQA documents lean heavily upon the project description, as all potential impacts are determined from this statement. After the Initial Study has been performed and impacts are identified, a draft environmental document is created and sent out to governmental agencies and the public for review and comment. The governmental agencies and public are allowed to comment on the project within their realm of expertise and are expected to augment the environmental document with any special concerns or mitigation requirements that cause a decrease in the project's potential environmental impacts.

Unfortunately, the CEQA process can take, literally, years to complete. In an effort to be more "business friendly" some legislators have sought methods to streamline the CEQA process, and reduce the amount of time it takes to complete the CEQA process. To date, no major changes to CEQA have been implemented to effectively reduce overall CEQA process. However, the struggle continues.

CALIFORNIA ENVIRONMENT QUALITY ACT (CEQA)

The California Environmental Quality Act (CEQA) is a state regulation established to provide local communities a formal process for review and comment on development

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Board of Directors usually meet once every two months starting in January at various locations.

Air Pollution Control Officer

Glen E. Stephens, P.E.

Hearing Board

- Bill Deaver
- Herb Roraback
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For news updates and other information, please visit the Eastern Kern APCD website at www.kernair.org

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