

Solar industry responsible for lead emissions in developing countries

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Solar power is not all sunshine. It has a dark side -- particularly in developing countries, according to a new study by a University of Tennessee, Knoxville, engineering professor.

A study by Chris Cherry, assistant professor in civil and environmental engineering, found that [solar power](#) heavily reliant on lead batteries has the potential to release more than 2.4 million tons of lead pollution in China and India.

[Lead poisoning](#) causes numerous [adverse health effects](#), including damage to the [central nervous system](#), the kidneys, the [cardiovascular system](#), and the [reproductive system](#). In children, blood lead concentration is associated with learning impairments, as well as hyperactive and [violent behavior](#).

His study, co-authored with Perry Gottesfeld of Occupational Knowledge International (OK International), appears in the September issue of the journal [Energy Policy](#).

Lead pollution predicted to result from investments in solar power by 2022 is equivalent to one-third of current global lead production. The researchers, who relied on official government plans for deploying solar power to make these projections, also found that the countries have large amounts of lead leak into the environment from mining, smelting, battery manufacturing, and recycling—33 percent in China and 22 percent in India. Also, a large percentage of new solar power systems

continues to be reliant on lead batteries for energy storage due to the inadequate power grid in these countries.

The study's release comes on the heels of reports of a large number of mass lead poisoning incidents around lead battery recycling and manufacturing plants in China and the announcement that the country recently closed 583 of these facilities.

"Investments in environmental controls in the lead battery industry, along with improvements in battery take-back policies, are needed to complement deployment of solar power in these countries," said Cherry. "Without improvements, it is increasingly clear that the use of lead batteries will contribute to environmental contamination and lead poisoning among workers and children."

The battery industry is the largest consumer of lead, using approximately 80 percent of global lead production. Lead battery manufacturing is growing rapidly in much of the world to meet demand for batteries for solar power and other applications. With the authors' projected emissions, they say this will impact public health and contribute to environmental contamination.

"The solar industry has to step up and take responsibility for ensuring that their lead battery suppliers are operating with adequate controls as long as they are going to be reliant on this technology," said Gottesfeld. "Without major improvements in the manufacturing and recycling lead batteries in these countries, we expect that lead poisoning will increase as the industry grows."

The projections outlined in the study, while based on plans articulated by these two countries, are likely to be repeated throughout much of the developing world, such as in Africa.

Provided by University of Tennessee at Knoxville

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