

# Electric vehicles can pollute too

We all tend to believe rather naively that electric vehicles don't pollute whereas the truth is quite contrary. We forget that electricity often comes from highly polluting coal sources of energy.

China produces electricity for its burgeoning economy with its ample coal reserves. A full 80 percent comes from coal-burning power plants, and new plants are being constructed all the time. The country's reliance on coal power, while causing very dirty pollution, also has an interesting side effect. It takes away the "greenness" of electric vehicles. A new study from a team of University of Tennessee researchers has found that the power generated to fuel electric cars produces much greater emissions of particulate matter (PM) than gasoline-powered cars. Perversely, this also makes driving an electric car in China a greater public health hazard than driving a gasoline car.

The research team from the University of Tennessee (UT) Knoxville included Chris Cherry, assistant professor of civil and environmental engineering and graduate student, Shuguang Ji. They looked at five different types of vehicles in 34 major Chinese cities, focusing on harmful particulate emissions.

Their findings turn basic logic on its head. Cars that produce no emissions themselves can actually produce more hazardous emissions indirectly than regular cars. "An implicit assumption has been that air quality and health impacts are lower for electric vehicles than for conventional vehicles," Cherry said. "Our findings challenge that by comparing what is emitted by vehicle use to what people are actually exposed to. Prior studies have only examined environmental impacts by comparing emission factors or greenhouse gas emissions."

The researchers found that PM emissions from coal plants are produced at much higher rates than gasoline vehicles. However, because the plants are located away from population centers, this is overlooked. When electric vehicles drive by in cities, people perceive fewer emissions than when conventional cars do.

The researchers compared the health effects of five different vehicle types: gasoline cars, diesel cars, diesel buses, e-bikes, and e-cars. They found that the impact of e-cars was equal to that of diesel buses. However, they found that e-bikes yielded the lowest health impacts.

This study highlights the importance of clean energy sources if widespread adoption of electric vehicles is to occur. Otherwise, the environmental health benefits will be for naught. In particular, reliance on coal power must be reduced for an electric-vehicle future (Environmental News Network 17-2-12).