

# Renewable energies will benefit US workers

August 18 2009

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Expansion of renewable energies should appreciably improve the health status of the 700,000 US workers employed in the energy sector, according to a commentary by Medical College of Wisconsin researchers, in Milwaukee. Their review is published in the August 19, 2009, issue of *JAMA*, the Journal of the American Medical Association.

Steven Sumner, M.D., who completed the work while a medical student, along with Peter Layde, M.D., professor of population health and co-director of the Injury Research Center at the Medical College, examined occupational health risks to workers in renewable [energy](#) industries compared to fossil fuel industries. Risk of workplace injury and death among energy workers is a hidden cost of energy production, known as an externality of energy. Externalities of energy production include a whole host of problems from damage to the general environment to adverse effects on human health caused by pollution to injury and death among workers in the energy sector.

Dr. Sumner, currently an internal medicine resident at Duke University, and Dr. Layde examined the human health risks associated with traditional [fossil fuels](#), such as coal, oil, and natural gas, relative to [renewable energy](#) sources such as wind, solar, and biomass. Wind and solar energy appeared to offer less risk of workplace injury and death than traditional fossil fuel industries, as the dangerous energy extraction phase is minimized or eliminated in wind or solar energy production. Biomass, comprised of biofuels, organic waste, and wood derived fuels, currently accounts for more than half of US energy renewable consumption and does not appear to offer a significant safety benefit to

US workers relative to fossil fuels.

“The energy sector remains one of the most dangerous industries for US workers. A transition to renewable energy generation utilizing sources such as wind and solar could potentially eliminate 1300 worker deaths over the coming decade,” says Dr. Sumner.

According to Dr. Layde, “Previous research on the health effects of a transition from fossil fuels to renewable energy has focused on the environmental benefits of renewable energy on air quality and global warming. The benefits of reduced workplace injury and fatality have not been sufficiently emphasized in the debate to move to renewable energies. This will be an added benefit to US energy workers with the passage of the American Recovery and Reinvestment Act of 2009.”

The researchers reviewed the occupational cost of energy production in the traditional and new energies and noted that while fossil fuel energies have historically been priced lower than renewable energies, the additional hidden costs, or externalities of energy, especially adverse effects on human health have often not been taken into account.

The dangers to energy workers were examined at various stages of energy production: extraction, generation and distribution. The entire fuel life cycle includes fuel extraction, other raw materials extraction, structure construction, equipment manufacturing, material transport, energy generation, power distribution and by product disposal.

## **Extraction:**

Mining, which includes coal, gas, and oil extraction from underground or underwater stores, is the second most hazardous occupation in the US with 27.5 deaths per 100,000, compared to the average annual fatality rate of 3.4 deaths for all US industries. Only agriculture is more

dangerous with 28.7 deaths per 100,000. Additionally, fossil fuel workers risk unintended injuries from extraction, and are exposed to hazardous particles, gases and radiation.

Renewable energies which eliminate the full extraction phase pose far less hazard, though a one-time extraction of raw materials is required to manufacture wind turbines and photovoltaic modules for wind and solar energy, respectively. Biomass, on the other hand, which includes corn farming for ethanol production, is unlikely to offer a reduction in extraction-related occupational fatalities.

## **Generation:**

The combustion required to generate fossil fuel not only leads to green house gases and respiratory pollutants, but includes risk of catastrophic explosions. This also holds true for biomass energy generation. In developed countries fossil fuels are associated with more accident-related fatalities per unit of energy generated than either nuclear or hydroelectric power.

With wind and solar the possibility of a large unintentional catastrophe is limited.

## **Distribution:**

There are several ways of distributing fossil fuel and renewable energies. Highway crashes account for the greatest proportion of fatalities among oil and gas extraction workers, who are not subject to work-hour restrictions imposed on other transportation industries. Biomass energies also use vehicular transportation. Both fossil fuel and wind and solar energies share a common pathway and risk for transmission of electrical current via utility powers lines.

The researchers concluded that available studies on occupational health risks of energy generation have significant limitations and more precise nationwide data for renewable energy occupations are needed.

Nonetheless, the potential occupational health benefits of transitioning to renewal energies are considerable and the safety profile should be immediate, obvious and sizeable.

Source: Medical College of Wisconsin ([news](#) : [web](#))

Citation: Renewable energies will benefit US workers (2009, August 18) retrieved 24 April 2024 from <https://medicalxpress.com/news/2009-08-renewable-energies-benefit-workers.html>

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