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Environmental Impacts From Non-Renewable Energy

Understand How Non-Renewable Energy Sources Are Damaging The Planet

By Maryruth Belsey Priebe June 20th 2011

Ever wonder exactly what the major problems are with some of the non-renewable energy sources? In addition to the greenhouse gas emissions released when things like natural gas, oil, and coal are burned, each of the fossil fuel energies below come with a world of other eco-woes. Below is a list of the most common non-renewable energy sources and their related impacts on human health and the environment.

Air pollution from factory

Oil (Crude and Petroleum) and the environment

In addition to carbon dioxide(CO2), byproducts (air pollutants) of burning petroleum products

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include:

- Carbon monoxide(CO)
- Sulfur dioxide (SO2) which causes acid rain and harms plants and animals
- Nitrogen oxides (NOx) and volatile organic compounds (VOC) which contribute to smog (ground level ozone)
- Particulate matter (PM) which contributes to asthma and chronic bronchitis in humans
- Lead and various air toxins such as benzene, formaldehyde, acetaldehyde, and 1,3-butadiene which may be emitted when some types of petroleum are burned, all of which come with significant human health hazards
- Not only that, but exploring and drilling for these products disturbs natural habitats on land and in the sea, and as we know from the Deepwater Horizon Oil Spill of 2010, catastrophic failures can be extremely damaging.

Tar sands, a special concern for the oil industry

The tar sands are oil deposits (many of which are concentrated in Canada) that are essentially vast swaths of land with oil-soaked soil and sand. To get at this difficult resource, oil companies strip away all vegetation (destroying huge areas of ecosystems), scrape away the oil-soaked soil, then use unbelievable amounts of water and chemicals to separate the oil from the land. Often referred to as the world's largest slow-motion oil spill, tar sands leave amazing environmental destruction in their wake:

- It takes two units of energy (usually natural gas) to extract one unit of energy from the tar sands, which means the energy return on energy invested (EROEI) is not positive
- Puts a large drain on surface water resources
- Contamination of groundwater
- Giant tailings ponds full of toxins (and massive bird deaths if not properly managed)
- Seepage of toxins into human drinking water

Please see publications by Environmental Justice and the Pembina Institute for more information on the tar sands.

Natural gas and the environment

This fossil fuel releases fewer air pollutants, including CO2, CO, SO2, and NOx, however since it is mainly composed of methane, a greenhouse gas that is significantly more potent in terms of trapping heat in our atmosphere compared to carbon dioxide, it still has a big impact on global warming (contributes 3% to total US greenhouse gas emissions)[1].

Like exploring and drilling for oil, the job of extracting natural gas results in massive disturbances on vegetation and soil (which harms wildlife) from vehicles, pipelines, storage facilities, and so on.

Fracking, a special concern for the natural gas industry

Fracking (short form for fracturing) is a process of using enormous amounts of water and sand or ceramic beads combined with toxic chemicals like benzene, ethylbenzene, toluene, xylene, naphthalene and other chemicals to remove the gas from hard to access sources. This results in groundwater contamination that causes measurable health problems for wildlife and humans.

For more information, please see fracking information at The Collaborative on Health and the Environment and Earthworks.

Coal and the environment

Coal is a very old form of fossil fuel energy (a major component of the industrial revolution), but comes with some big environmental problems, too – from mining to transporting to burning it.

- Air pollutants, including SO2, NOx, and CO2
- Mercury is released when coal is burned – linked to neurological and developmental problems in humans
- Mountaintop removal coal mining involves blowing the tops off of entire mountains to get at the coal deposits
- Acidic water can drain from mines, polluting natural ecosystems
- Fly ash and bottom ash are two byproducts produced when burning coal, adding to air pollution
- Many humans die in the process of mining every year around the world

Nuclear and the environment

Though nuclear power plants do not produce air pollution or greenhouse gas emissions while operating, there are some significant concerns regarding the mining of uranium ore (the fuel used in nuclear reactors) and what to do with spent uranium when it is retired.

- Mining uranium and building nuclear power plants require large amounts of energy, leading some to question whether the energy inputs are worth the energy outputs.
- The radioactive nuclear waste created in nuclear power plants remains dangerous to human and environmental health for thousands of years – storing it is therefore an enormous problem (financial and environmental) for which there is no viable solution as of yet.
- These power plants can experience major failures resulting in catastrophic meltdowns like Chernobyl.

If you want to reduce your carbon footprint and lower your monthly electricity bill, here are some great energy saving tips that you can start applying in your home today.

Comments

References

1 *Natural Gas explained - Natural Gas and the Environment*. (n.d.). Retrieved February 2, 2011, from US Energy Information Administration: http://www.eia.doe.gov/energyexplained/index.cfm?

page=natural_gas_environment