

## PNFA FACT SHEET

# NUCLEAR POWER DOES NOT REDUCE CARBON EMISSIONS

- There is a huge propaganda push by the nuclear industry to justify nuclear power as a panacea for the reduction of global-warming gases.

The fact is, it takes energy to make energy -- including nuclear energy. And the true "energetic costs" of making nuclear energy -- the amounts of fossil fuel needed to create nuclear energy -- have not been tallied up until very recently.

- What exactly is nuclear power? It is a very expensive, sophisticated and dangerous way to boil water. 100 tons of uranium fuel rods are placed in water in a reactor core, and as they reach critical mass they produce vast quantities of heat which boils the water. Steam is then directed through pipes to turn a turbine, which generates electricity.
- Although a nuclear power plant itself releases no carbon dioxide, the production of nuclear electricity depends upon a vast, complex, and hidden industrial infrastructure that is never featured by the nuclear industry in its propaganda, but that actually releases a large amount of carbon dioxide as well as other global warming gases. One is led to believe that the nuclear reactor stands alone, an autonomous creator of energy. In fact, the vast infrastructure necessary to create nuclear energy, called the nuclear fuel cycle, is a prodigious user of fossil fuel and coal.
- The production of carbon dioxide, or CO<sub>2</sub> is one measurement that indicates the amount of energy used in the production of the nuclear fuel cycle. Most of the energy used to create nuclear energy -- to mine uranium ore for fuel, to crush and mill the ore, to enrich the uranium, to create the concrete and steel for the reactor and to store the thermally and radioactively hot nuclear waste -- comes from the consumption of fossil fuels, that is, coal or oil.

When these materials are burned to produce energy, they form CO<sub>2</sub>, reflecting coal and oil's origins in ancient trees and other organic carboniferous material laid down under the earth's crust millions of years ago. For each ton of carbon burned, 3.7 tons of CO<sub>2</sub> gas are added to the atmosphere, and this is the source of today's global warming.

- A study by Jan Willem Storm van Leeuwen and Philip Smith titled "Nuclear Power -- the Energy Balance" concludes "The use of nuclear power causes, at the end of the road and under the most favorable conditions, approximately one-third

as much carbon dioxide (CO<sub>2</sub>) emission as gas for electricity production. The rich uranium ores required to achieve this reduction are, however, so limited that if the entire present world electricity demand were to be provided by nuclear power, these ores would be exhausted within nine years. Use of the remaining poorer ores in nuclear reactors would produce more CO<sub>2</sub> emission than burning fossil fuels directly."

In this instance, nuclear reactors are best understood as complicated, expensive and inefficient gas burners.

- At present there are 442 nuclear reactors in operation around the world. If, as the nuclear industry suggests, nuclear power were to replace fossil fuels on a large scale, it would be necessary to build 2000 large, 1000-megawatt reactors. Considering that no new nuclear plant has been ordered in the US since 1978, this proposal is less than practical.

Furthermore, even if we decided today to replace all fossil-fuel-generated electricity with nuclear power, there would only be enough economically viable uranium to fuel the reactors for nine years.