

## Trapping Carbon Dioxide Or Switching To Nuclear Power Not Enough To Solve Global Warming Problem, Experts Say

*ScienceDaily (July 13, 2009)* — Attempting to tackle climate change by trapping carbon dioxide or switching to nuclear power will not solve the problem of global warming, according to energy calculations published in the July issue of the *International Journal of Global Warming*.

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Bo Nordell and Bruno Gervet of the Department of Civil and Environmental Engineering at Luleå University of Technology in Sweden have calculated the total energy emissions from the start of the industrial revolution in the 1880s to the modern day. They have worked out that using the increase in average global air temperature as a measure of global warming is an inadequate measure of climate change. They suggest that scientists must also take into account the total energy of the ground, ice masses and the seas if they are to model climate change accurately.

The researchers have calculated that the heat energy accumulated in the atmosphere corresponds to a mere 6.6% of global warming, while the remaining heat is stored in the ground (31.5%), melting ice (33.4%) and sea water (28.5%). They point out that net heat emissions between the industrial revolution circa 1880 and the modern era at 2000 correspond to almost three quarters of the accumulated heat, i.e., global warming, during that period.

Their calculations suggest that most measures to combat global warming, such as reducing our reliance on burning fossil fuels and switching to renewables like wind power and solar energy, will ultimately help in preventing catastrophic climate change in the long term. But the same calculations also show that trapping carbon dioxide, so-called carbon dioxide sequestration, and storing it deep underground or on the sea floor will have very little effect on global warming.

"Since net heat emissions accounts for most of the global warming there is no or little reason for carbon dioxide sequestration," Nordell explains, "The increasing carbon dioxide emissions merely show how most net heat is produced.

The "missing" heat, 26%, is due to the greenhouse effect, natural variations in climate and/or an underestimation of net heat emissions, the researchers say. These

calculations are actually rather conservative, the researchers say, and the missing heat may be much less.

The researchers also point out a flaw in the nuclear energy argument. Although nuclear power does not produce carbon dioxide emissions in the same way as burning fossil fuels it does produce heat emissions equivalent to three times the energy of the electricity it generates and so contributes to global warming significantly, Nordell adds.