Open Letter to the American Nuclear Society

Nuclear Energy and the CO_2 Fiction

by Zbigniew Jaworowski

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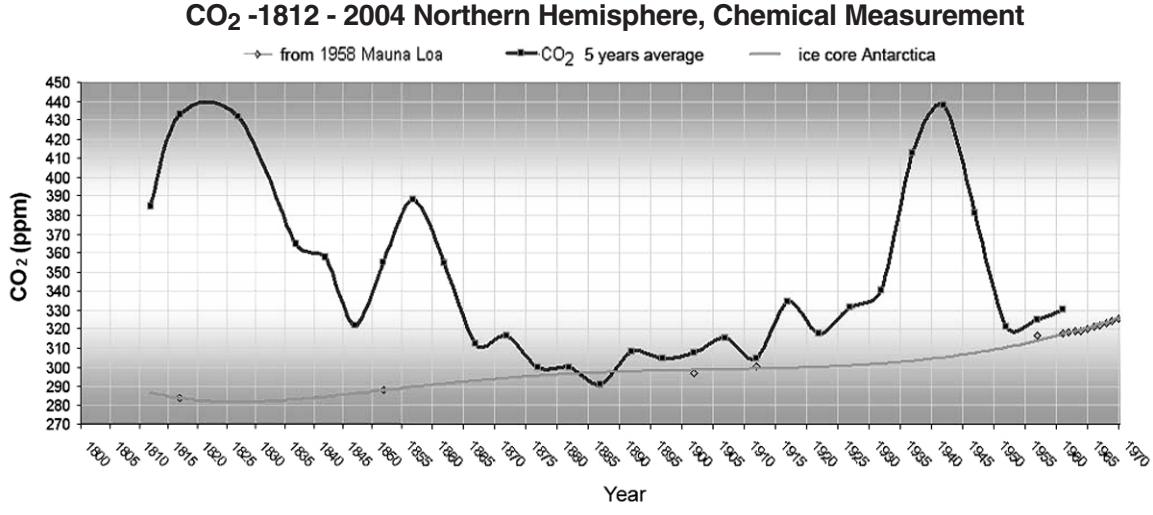
Three of Jaworowski's papers on climate appear on the website of 21st Century Science & Technology *magazine, www.21stcenturysciencetech.com .*

In 1989 I was invited by Dr Hans Blix, then the Director General of the International Atomic Energy Agency for a chat in his Vienna office. Staunch defender of the truth, it was more than a decade before he hit the headlines proving his honesty and integrity, as the head of the United Nations Commission for Weapons of Mass Destruction in Iraq. He had asked my opinion on future prospects for nuclear energy, in view of the societal effects of the Chernobyl disaster. I told him what I already said in an editorial to the Special Chernobyl Issue of the Environment International (Jaworowski 1988). Chernobyl was the greatest possible catastrophe of a nuclear power reactor—nothing worse could happen—and its worst effects were psychological. In terms of human losses, Chernobyl may be regarded as a minor one compared with other industrial catastrophes.

I stated that in future ages Chernobyl will be remembered as a proof that nuclear power is probably the safest means of energy production, as was also proved by the Three Mile Island accident in 1979. I said that in its public relations policy the Agency should concentrate on presenting this positive practical experience, and on comparing the health and economic effects, and geopolitical risks of nuclear power with other industries.

I doubt that my arguments convinced Dr Blix. He said that for gaining the public support for nuclear energy one should concentrate on its near-zero CO_2 emissions, which may redeem us from the climatic warming doom scenario. Already, at that time, I knew that this global warming scenario was a politicized science fiction, inflated with ideology and big money. I advised Blix that for the sake of honesty and scientific integrity, in promoting nuclear energy, the IAEA should refrain from using a fiction, the flaws of



FIRST RECONSTRUCTION OF TRENDS IN CO_2 ATMOSPHERIC CONCENTRATION BASED ON ACTUAL MEASUREMENT

This first reconstruction of trends in CO_2 concentration in the Northern Hemisphere is based on more than 90,000 direct chemical measurements in the atmosphere at 43 stations, between 1812 and 2004. The lower line are the values from Antarctic ice core artifacts. The diamonds on the lower line (after 1958) are infrared CO_2 measurements in air from Mauna Loa, Hawaii.

Source: Adapted from Beck 2007

which sooner or later will be apparent.

Today, 18 years, and only a meager worldwide increase of 14 nuclear power reactors later, the IAEA still promotes nuclear energy by reciting the CO_2 mantra, even though the Chernobyl specter with its 31 deaths among the plant employees and rescue workers, is much less frightening now than in 1989 (UNSCEAR 2000). Many people learned that Chernobyl is dwarfed by a host of other industrial catastrophes, among them the one in Bhopal chemical factory in 1984, with its more than 15,000 fatalities (Dhara and Dhara 2002), and the Banquiao Dam burst in 1975, with 230,000 fatalities (McCully 1998), the latter for a quarter of century airbrushed from history by Chinese authorities.

Climate Scare Not Helpful for IAEA

The climate scare was not very helpful for the IAEA. The European Union has suffered a decades-long stagnation in nuclear power development, even though, with its 152 nuclear reactors, atoms play a crucial role in the EU energy market, sharing 31 percent of electricity production. Yet, in a 2006 EU energy paper (COM 2006, 105, 8.3. 2006) only one sentence paid lip service to nuclear energy, and the discussion was centered on zero-emission fossil fuel power plants, biofuels, photovoltaics, wind energy, and solar thermal energy. All of these energy sources are expensive, not technically ripe, less environment friendly than nuclear power, and hopelessly unfit both to fulfill the long-term energy needs for the world, and to stop climatic warming. This 2006 EU document did not even mention nuclear energy in its conclusion and vision statements.

Unexpectedly, in 2007, the European Union started a new love affair with nuclear energy. In its resolution of October 24, 2007 on Conventional Energy Sources and Energy Technology (2007/2091, INI), the European Parliament defined nuclear energy as indispensable for the basic energy needs of Europe. A similar conclusion appears in the basic EU document Nuclear Illustrative Programme (COM, 2007, 884 final). From these documents one can deduce that the European Parliament realized that expensive renewable sources of energy are too small, too expensive, and too unreliable, and that without nuclear energy the European energy policy goals cannot be met in an economically acceptable way. The era of cheap energy (and thus of prosperity) is over, mainly due to insufficient and improper investments in energy production over the past few decades (COM, 2007, 884 final).

This neglect in energy investment, partly sparked by environmentalists, combined with increased energy demand, may first lead to skyrocketing energy prices, and then to a decline of the world economy, with its drastic negative political, societal, and environmental effects. The economically recoverable fossil fuel resources, at the world's annual 2000 consumption level, will run out in about 200 years for coal, 60 years for natural gas and 30 years for oil (Chow and al. 2003). So, there is still enough time for replacement of fossil fuels, this aging workhorse of modern civilization, with nuclear energy sources: fission reactions of uranium and thorium, and then synthesis of hydrogen or helium-3 atoms.

With fast breeder reactors, uranium and thorium resources will suffice for a few thousand years of global energy consumption, and the synthesis of light atoms will suffice practically for infinity (Cramer 2004, Ongena and Van Oost 1998). Because of the high energy content of nuclear fuels (75,000 times higher than that of coal), each country could easily make reserves sufficient to feed nuclear power stations for many decades, a task impossible for coal, oil, and gas power stations. Switching to nuclear power as a main energy source would eliminate dependence on fossil fuel supplies from unstable regions. This would have a beneficial stabilizing influence on global politics. With access to nuclear energy, we would stop the rapid exhaustion of coal, gas and oil by primitive burning in homes and in industry. We would do this not because of a man-made climate-warming illusion, but to keep these resources for their more sophisticated uses by the future generations peopling the long corridors of time ahead.

The recent enthusiasm of European Union bureaucrats for nuclear energy stems not from this perspective, however. The main argument for nuclear energy is the same as that of Dr. Hans Blix: fighting against climate change, against CO_2 emissions, which are erroneously regarded in the EU document COM, 2007, 884 final, as the principal greenhouse gas. Accordingly, the Commission of the European Communities proposed as its strategic energy policy objective for 2050, that greenhouse gas emissions in industrialized countries be reduced by 60 to 80 percent (COM, 2007: 2, 10.1.2007).

The problem is that the principal greenhouse gas is not CO_2, but water vapor, which is responsible for about 98 percent of the greenhouse effect (Lindzen 1991), to which man-made CO_2 contributes about 0.2 percent (Jaworowski 1999). The overwhelming emphasis of recent EU documents on nuclear energy is as a means to prevent and fight a nonexistent menace of climatic catastrophe. It is depressing to see how global warming hysteria dominates the thinking of the EU bureaucrats on the most important issue of energy supply for the world. In effect these documents are a mixture of nuclear and economic realism, garlanded with the ritual of green creed guiles—raising hopes that in time the garland will wither, leaving the realism free.

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