THE PRESIDENT HAS SEEN.

EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF SCIENCE AND TECHNOLOGY POLICY
WASHINGTON, D.C. 20500

July 7, 1977

MEMORANDUM TO THE PRESIDENT

From: Frank Press FP

Subject: Release of Fossil CO_2 and the Possibility of a Catastrophic Climate Change

Fossil fuel combustion has increased at an exponential rate over the last 100 years. As a result, the atmospheric concentration of CO_2 is now 12 percent above the pre-industrial revolution level and may grow to 1.5 to 2.0 times that level within 60 years. Because of the "greenhouse effect" of atmospheric CO_2 the increased concentration will induce a global climatic warming of anywhere from 0.5^{o} to $5^{o}C$. To place this in perspective, a ΔT of $5^{o}C$ would exceed in 60 years the normal temperature swing between an ice age and a warm period which takes place over tens of thousands of years.

The potential effect on the environment of a climatic fluctuation of such rapidity could be catastrophic and calls for an impact assessment of unprecedented importance and difficulty. A rapid climatic change may result in large scale crop failures at a time when an increased world population taxes agriculture to the limits of productivity. The urgency of the problem derives from our inability to shift rapidly to non-fossil fuel sources once the climatic effects become evident not long after the year 2000; the situation could grow out of control before alternate energy sources and other remedial actions become effective. Natural dissipation of CO_2 would not occur for a millenium after fossil fuel combustion was markedly reduced.

As you know this is not a new issue. What is new is the growing weight of scientific support which raises the CO_2-climate impact from speculation to a serious hypothesis worthy of a response that is neither complacent nor panicky. The authoratative National Academy of Sciences has just alerted us that it will issue a public statement along these lines in a few weeks.

The present state of knowledge does not justify emergency action to limit the consumption of fossil fuels in the near term. However, I believe that we must now take the potential CO_2 hazard into account in developing our long-term energy stragegy. Beyond conservation, we must be prepared to exploit nuclear energy more fully. As insurance against over-reliance on a nuclear energy economy, we should emphasize targeted basic research which could lead to breakthroughs for solar electric, biomass conversion or other renewable energy sources. I am already working with OMB and other Federal agencies on a national climate research program which would lead to a better assessment of the CO_2 hazard. If you agree, I will work with OMB, ERDA, FEA, and NSF on alternate strategies for R&D, responsive to a possible CO_2 hazard.

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