

GENERAL 7A

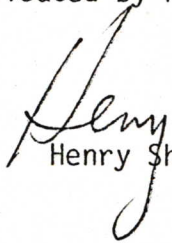
MEMORANDUM

TO D. E. Smiley

FROM HENRY SHAW

DATE December 5, 1980

Attached is a copy of my comments to the NCAQ. Note that my comments are underlined and the original text that was deleted is indicated by hyphens across the words.


Henry Shaw

HS/lw

Attachment

cc: H. C. Hayworth
H. N. Weinberg

EXON RESEARCH AND ENGINEERING COMPANY

CORPORATE RESEARCH
TECHNOLOGY FEASIBILITY CENTER

P.O. BOX 45, LINDEN, N.J. 07036

H. C. HAYWORTH, Manager
Contract Research Division

December 5, 1980

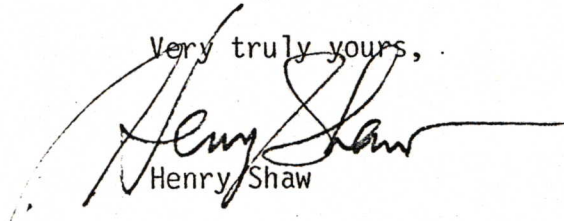
Ms. Alexis Hoskins/Mr. Joe Duckett
Schwartz & Connolly, Incorporated
1747 Pennsylvania Avenue, N.W.
Washington, D.C. 20006

Dear Messrs. Hoskins and Duckett:

Attached is a marked up copy of the draft statement of the workshop findings. My comments are based on my understanding of the potential CO₂ problem and do not reflect the Friday morning discussion which I unfortunately missed. I feel comfortable with the spirit of the recommendations, although I would like to see the wording of the policy recommendations made more specific.

Please let me know if I can be of further help.

Very truly yours,



Henry Shaw

HS/lw

Attachment

NATIONAL COMMISSION ON AIR QUALITY CO₂ WORKSHOP
DRAFT STATEMENT OF FINDINGS AND RECOMMENDATIONS

Introduction

Over the past twenty years, an increase in the global atmospheric concentration of carbon dioxide (CO₂) has been observed. This increase has been attributed primarily to the combustion of fossil fuels, and to a lesser extent, to land use practices (such as deforestation) which alter the net storage of carbon in vegetation and soils. Although the contributions to atmospheric CO₂ from these activities are not known precisely, it has been estimated that the amount of carbon stored in the fossil fuels/shale reservoir and in forests (including their soils) represents approximately seven and three ~~two~~ times, respectively, the amount held in the atmosphere.

Climate models indicate that if ~~if the increase in~~ atmospheric CO₂ levels continue ~~continues~~ to increase ~~take place~~ at existing or accelerated rates, a globally-averaged warming of the lower atmosphere, possibly leading to changes in world climate (such as changes in the distribution of precipitation) may ~~almost surely will~~ occur. For example, an ad hoc group of the National Academy of Sciences' Climate Research Board recently evaluated the results from a number of climatological models, and indicated that based on the current state-of-the-art (which is quite rudimentary), predicted that a global increase of 3°C + 1.5°C in the annual average temperature is the best estimate that can be made for ~~will probably result from~~ a doubling of the atmospheric concentration of CO₂. However, such changes in temperature ~~climate~~ are expected to occur with uneven geographic distribution, with greater warming occurring at the higher latitudes.

Among the postulated possible potential-direct results of such alterations in world climate due to a global temperature increase are changes in agriculture; in the stability, distribution, and productivity of natural ecosystems; and eventually; the sea level (due to the collapse of a portion of the West Antarctic polar ice sheet). Although changes in climate have occurred naturally since the earth was formed, changes resulting from man-induced increases in the CO₂ content of the atmosphere are of special concern because they can occur within a century, over-decades, rather than over millenia, and because the increases are expected to persist for hundreds of years.

At present, there are substantial scientific uncertainties concerning anthropogenic sources of the-relationship-between-human-activities, atmospheric levels-of carbon dioxide, and their impact on climate and the global environment. In the U.S., a comprehensive research plan to address the these uncertainties associated with the consequences of a build-up of atmospheric CO₂ is being developed under the auspices of the National Climate Program. In addition, a number of international initiatives concerning CO₂ have recently been undertaken, such as the development of a coordinated plan of action for international research. Despite the these large scientific uncertainties, however, some members of the scientific community and others have advocated that actions be taken to prevent or mitigate CO₂-induced climate change. Notably, a panel of scientists attending the International Workshop on Energy/Climate Interactions (held in March, 1980 in Munster, F.R.G.) recommended that in light of the potential magnitude and irreversibility of CO₂-induced climate change,

the global consumption of fossil fuels should be stabilized at the 1980 levels. It should be noted, however, that Congressional testimony by key scientific experts in the relevant disciplines dealing with the CO₂ question recommended that our energy options not be narrowed at this time⁽¹⁾.

The primary purpose of this NCAQ workshop [this will have been introduced in an earlier section of the full report] was to bring together scientists and policy-makers to assess whether the potential consequences of anthropogenic increases in atmospheric CO₂ levels are substantial significant enough to warrant development of public policy responses. Although all workshop participants may not necessarily agree with each of the findings and recommendations as expressed below, the following statement represents a general consensus among the participants.

(1) Committee on Governmental Affairs, United States Senate, "Carbon Dioxide Accumulation in the Atmosphere, Synthetic Fuels and Energy Policy-A Symposium" July 30, 1979.

Findings

1. While CO₂-induced changes in global climate may have certain beneficial effects, it is believed that the net consequences of these changes will be adverse to the stability of human and natural communities.
2. In the next few decades, there are no ~~not~~ likely ~~to-be~~ technological "fixes" (e.g., emission control devices or techniques) that will provide practical means of controlling CO₂ emissions resulting from combustion.
3. In policy actions to control the increased CO₂ loading of the atmosphere are delayed until climate changes resulting from such an increase are discernible, then it is likely that they will occur too late to be effective.
4. In light of finding #3, ~~and-of-the-difficulty-of,-and-long-time~~ ~~required-for,-resolving-the-scientific-uncertainties-surrounding-the~~ CO₂-issue, it is likely that policy actions to control the ~~long-term~~ growth of atmospheric CO₂ levels will need to be taken with imperfect knowledge of the probability and consequences of CO₂-induced climate change.
5. There appear to be few, if any, precedents for the U.S. political system to address a potential problem whose potential impact ~~nature~~ is as far in the future ~~long-term~~ as that of the CO₂ issue. That is, the potential societal cost ~~costs~~ of a CO₂-induced climate change

will not be borne for many decades, while the costs of avoiding such change would primarily be incurred in the near term. Therefore, it will be very difficult, but important yet-it-is-essential, to place the CO₂ issue on the nation's public policy agenda.

6. At present, the federal government together with the private sector are considering policy options for revitalizing U.S. industry. This revitalization effort will establish energy consumption and fuel use patterns that will likely have a significant impact on future man-induced emissions of CO₂. It is therefore timely to consider ways of reducing CO₂ emissions now, while industrial revitalization policies are being formulated.

7. Policies to control atmospheric levels of CO₂ should be international in scope. Unilateral action by the U.S. can be an important first step in initiating international action but cannot, by itself, control atmospheric CO₂ levels. Thus, it is important to sharply accelerate international dialogue concerning the CO₂ issue, through both existing and new mechanisms devised for this end.

Recommendations

A conclusion drawn from the above-listed findings is that consequences associated with increased atmospheric concentrations of CO₂ dictates the need for (a) conducting additional research and (b) taking certain policy-related actions.

a. Research Recommendations

1. This point seems to belong under policy recommendations. Research on the CO₂ issue should be assigned a high priority in responsible federal agencies. For example, the Congress could amend the National Climate Program Act (P.L. 95-367) by recognizing the role of present federal CO₂ research programs in the National Climate Program and by confirming the Department of Energy as the lead agency for the CO₂ research efforts.

2. Within the domestic and international CO₂ research programs, high priority should be assigned to research which is essential for answering key policy-related questions. Examples of For example, specific research topics ~~important-to-resolving-policy-related-questions~~ include:
 - improved understanding of the carbon cycle;
 - improvements in predictive models to better estimate the likelihood and magnitude of CO₂-induced climate change;
 - improvements in the ability to detect climate change;
 - projections of climate impacts on a regional basis, and
 - assessments of the potential social, environmental, economic and political consequences of CO₂-induced climate change.

3. The U.S. should vigorously support international programs and activities that will advance our understanding of the CO₂ issue, and which will foster development of an international scientific consensus on the issue. For example, the U.S. could propose a Resolution to the United Nations General Assembly endorsing the World Climate Program.

4. The CO₂ issue is going to be rapidly shifting from a purely scientific question to one which also involves a variety of public policy issues in the next decade. The contributions of social and political scientists are essential to the identification and analysis of alternative policy responses and should be involved in the CO₂ research program. For example, groups such as the International Council of Scientific Unions (ICSU) should be encouraged to broaden their membership to include representation by the social and political science disciplines.

b. Policy-Related Recommendations

1. The U.S. should consider an increases ~~increase~~ in the rate of CO₂ emissions as probably an undesirable condition and should explicitly seek ~~to control the long-term growth of CO₂ emissions~~ to develop discussions on developing national and international policies (e.g., concerning subsidies, regulation, research, import/export and other programs) designed to affect energy

supply and consumption. During deliberations concerning these policies, the differences in CO₂ emissions per unit of energy output of the different fossil fuels should be weighed heavily.* However, the market penetration of new technologies that would produce more net CO₂ per unit of useful energy, such as synfuels, is sufficiently slow to cause relatively minor concern about accelerating the CO₂ build-up over the century.

2. The U.S. should shift national policy to emphasize conservation and energy efficiency. Such an emphasis by the world's largest consumer of fossil fuels ~~would help control the rate of increase in atmospheric CO₂ levels, and~~ would serve as a means of exercising international leadership in reducing the risks and potential consequences of CO₂-induced climate change.

3. The U.S. should provide greater resources for developing efficient alternatives to fossil fuels, fully recognizing that all external costs must be carefully weighed in evaluating the desirability of any energy alternative. The group does not explicitly or implicitly endorse any particular non-fossil form of energy.

* (For example, it has been estimated that the relative amounts of CO₂ released in the production of a unit of energy from various fossil fuels are: natural gas -- 1.0, oil -- 1.5, coal -- 1.8, shale oil -- 2.1, coal-derived gas -- 3.0, and coal-derived oil -- 2.8)

4. In light of finding #6, national policies and private activities regarding industrial revitalization should, if at all possible, be designed so as to assist in controlling the long-term growth of CO₂ emissions.

5. ~~Since the role of forests and their soil in the global CO₂ budget and in affecting the CO₂ content of the atmosphere is substantial,~~ U.S. policies designed to control the long-term growth of atmospheric CO₂ releases should recognize the management of forests as a stabilizing factor of the world carbon cycle. Specifically, the U.S. should establish domestic and foreign policies which:
 - discourage deforestation and other land use practices which contribute to increased atmospheric CO₂ levels, and
 - encourage activities, such as reforestation, which will help mitigate the CO₂ problem.

6. As a high priority, the U.S. should undertake to enter into international arrangements to foster cooperative research on the CO₂ issue and should undertake, in cooperation with other countries, international measures aimed at long-term control of CO₂ release releases. [Please provide examples of the types of international measures which could be undertaken.] Encourage nuclear development by selling nuclear fuel and reprocessing it.

7. Currently, discussions are being held within the international scientific community concerning the formation of an international carbon dioxide assessment board to provide authoritative and unbiased evaluations of the nature, magnitude, and implications of growing atmospheric levels of CO₂. The U.S. should support the formation of such a board. This board should be established under non-governmental auspices, (e.g., through the International Council of Scientific Unions--ICSU), and with the cooperation and support of interested intergovernmental organizations, (e.g., the World Meteorological Organization--WMO, the United Nations Environment Programme--UNEP, and the Organization for Economic Cooperation and Development--OECD, etc.).

8. The U.S. should ensure that the CO₂ issue is adequately considered in the international forums, such as the 1981 U.N. Conference on New and Renewable Sources of Energy.

