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The Energy Outlook and Global Interdependence*

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Explanatory Note

A Public Convocation on "The Energy Outlook and Global Interdependence" took place in New York City, November 19 and 20, 1974, jointly sponsored by the Fund for Peace and the Scientists' Institute for Public Information (SIPI). RCSI Board member Reveira Wilcove was there. This report is abstracted from her notes. The views reported represent a careful sampling of one very full day, and RCSI neither endorses nor rejects them. The program of the meeting and its final "Statement of Participants..." are included as appendices to the bulletin.

The People

Papers were presented by people from many countries; Sweden, Finland, Great Britain, West Germany, Italy, Belgium, Argentina, Sudan, Puerto Rico, Kuwait, Iran and the United States.

There was a catholicity of points of view: the chairman of the First Pennsylvania Banking and Trust, the president of the United Mine Workers of America, the United Nations' first energy chief, a World Bank senior adviser, a former director of Oak Ridge National Laboratory, many people from the university world - especially in physics, geology, medicine and economics - and people from the world of government.

Notables: Elizabeth Mann Borghese, Barry Commoner, Norman Cousins, Gunnar Myrdahl, Ralph Nader (overheard: one matron to another - "who was there this morning, after all, darling, Ralph!), Studs Terkel, Alvin Weinberg.

The Issue

There was general agreement that an energy crisis exists - brought into sharp focus by the revision upward of the price of oil, affecting the economies of all countries. It was also generally agreed that action similar to that in oil can be expected in relation to other essential raw materials - there will be shortages of both metals and primary food stuffs - as population outdistances the earth's resources; and that there are bound to be economic dislocations and threats to the peace as a result.

This conference was called to discuss: increasing the efficiency of energy use, controlling supply and price of current energy resources, future energy sources, and the effect of the energy crisis on global economics.

Three Major Areas of Controversy

1. Economic

There was disagreement on the just price for fossil fuel. There also seemed to be some disagreement on the total amount available, and how long it will last. Some observers, notably E. H. S. Burhop, physics, University College, London, felt that the

oil producing countries had a right to take action on oil prices - since the previous low price was a gross underevaluation. He argued that if energy demand continues to grow in the developed countries as well as less developed countries, stores of fossil fuels both known and estimated will last only thirty-six years. Such scarcity deserves higher prices.

Others, notably Ralph Nader, said that while there is an energy crisis, we have far more than one generation's worth of oil reserves in the United States and 600 billion barrels in the tar sands of Canada. (Last year the U.S. used only six billion barrels totally.) He maintained that the high price of oil is a conspiracy by the oil companies, in close interlock with the U.S. government. He pointed out that oil industry personnel are recruited into the Department of the Interior ("the accounts receivable for the oil industry"). He quoted Secretary Morton's remark to the oil companies - "We are here to serve you, not to regulate you". For example, while 850 auditors check on price control for the Federal Energy Administration, only two (2) auditors go over the refineries' books. Six billion dollars of excess profit should have been exposed; only several million have been.

Nader feels that our first concern should be open information gathering and dissemination of that information. Government can't make policy when it doesn't have the figures on production of oil, refining, distribution, marketing, conservation of energy. There is inadequate data on reserves and on the cost of nuclear power. The secrecy is overwhelming.

Interjection from Dr. Farvar, Environmental Conservation Chief, Iran: "But what is the just and fair price for the oil?"

## 2. Technological

Another area of basic disagreement was on the advisability of increasing the use of nuclear power.

### Position of nuclear power proponents

Nuclear power becomes more and more feasible as oil becomes more expensive. When oil was cheap, small nuclear power plants were non-competitive, but they are now viable economically and of interest especially to the developing countries. Known reserves of uranium are not adequate at present to supply the estimated annual needs, but it is believed that sources are grossly underestimated and that extraction from sea water on a large scale is possible. Even without extracting U<sub>3</sub>O<sub>8</sub> from sea water and without breeding, uranium should provide electricity at a cost competitive with fossil fuels for many years.

Many pro-nuclear plant people, however, would delay the breeder reactor for at least 25 years - to see if fusion can be developed. The comparative ease with which plutonium wastes can be made into bombs, as well as the deadliness of introducing plutonium into the environment, are the reasons cited for this position. Proponents say savings from the breeder can be used to improve the design of the plants and that safety is a function of the sophistication of the design, which depends on capital.

There was a heated exchange between Dr. Alvin Weinberg, member of the Federal Energy Administration (former Director of Oak Ridge National Laboratory) and Dan Ford (I believe a lawyer from Friends of the Earth).

Dr. Weinberg, a strong proponent of nuclear energy said 100 nuclear plants will be built in the U.S. when capital becomes available again. He presented again his plan to cluster them in nuclear parks.

Mr. Ford said the hazards of nuclear plants are obvious and even the most earnest advocates want unique safety devices. He cited Ralph Lapp with his insistence that plants be underground; Alvin Weinberg with his cloistered parks under elite management - since ordinary utility companies are not competent to provide adequate security.

Mr. Ford also questioned the validity of the projections on the possibility of nuclear accidents as presented in the former AEC's Rasmussen Report. Dr. Weinberg felt that atomic weapons are already with us, more hazardous than atomic power, and under the military. He also saw no contradiction between developing both solar and nuclear power. Why not both?

There was agreement that U.S. technology in general could stand improvement. The steam cycle is one of our two main technologies and it is only 40% efficient. The other is transportation (internal combustion engine) which is only 15% to 20% efficient. We could improve efficiency and reduce waste in use, as well as increase the initial extraction. At present 70% of the oil or gas remains in the well.

Another argument developed when Albert de Smael, President of the Belgian Association for European Security and Cooperation, said we have to share what we have, particularly fossil fuel, with the developing countries and change our ways.

Interjection by Dr. Tomas Morales Cardona, Medical School, University of Puerto Rico: "And who will pay for the doublings. (of energy demand), more Puerto Rico's?" (The question referred to the feeling of many Puerto Ricans that the island is being despoiled by U.S. oil refinery and super-port activity.)

#### Alternatives

Dr. Elizabeth Mann Borghese said energy may come from the sea. Oil is being recovered at depths of 600 feet now. There are underwater storage tanks. Other energy may come from tides, from waves, from currents, from thermal differentials. Atomic installations can be built offshore using ocean water for coolants. Power plants can also produce fresh water from salt water, and can be used to produce plant protein.

In addition, a marine revolution is going on in fish farming which may multiply supplies in 10 years. Squid is a very good unconventional protein which is being made palatable by the U.S.S.R.; this source may triple the world supply of protein.

Unfortunately the ocean is the dumping ground for polluted materials. By 1980, 20,000,000 tons of oil will be going into the oceans as waste. When nuclear reactor cores are set in the ocean, thousands of cubic miles will be affected with strontium 90. Unprecedented. Dr. Borghese said there should be a body of international law established by an Ocean Space Authority, rather than just laws covering the seabed.

From Sudan came the news that there have been recent advances in solar energy conversion, but the same serious technical problems apparently remain unsolved. There was some disagreement about the economic feasibility of solar energy at the present time. Dr. Weinberg said people have worked hard on making solar energy practical, but it is awkward and expensive - will cost 3 to 10 times as much as atomic power. He thought the budget for solar research should be expanded, but the man from Sudan (University of Khartoum) said Gabon is currently using 2½ million solar cells. And Australia is using them widely too. They are an important auxiliary source of power. Colonel de Smael: "Using tens of thousands of miles of sky! Imagine!"

### 3. Political Themes - Particularly Anti-National and "Third World"

There was consensus that the technological knowledge is available, or soon forthcoming, but not the political will to cooperate. Many from the West have come to feel that the attempt to redirect energy use in order to produce energy abundantly, cheaply and with social concern, runs, every time, headlong into the profit-market system of the capitalist countries, which thrives on waste, scarcity and private gain. The technology of abundance doesn't go with cartels. There is no doubt that the energy crisis is a test of the West's economic system. By 1985, 80% of all capital will be going to produce energy. There will be a shortage of \$650 billion in the next decade, and nothing will be left over for social services. The remedy lies, some said, in giving up the profit system. Others felt that the collectivist societies are no more benign and respond far less quickly and flexibly to changing conditions.

It was pointed out by those of a more conservative stance that preaching revolution might lead to dictatorship - as the French Revolution led to Napoleon and the Russian to Stalin - and that perhaps adjustments could be made within the framework of our existing institutions.

There was general agreement that more international cooperation is required, to preserve the West and to extend help to the third world. There has been an alarming, for the West, shift in the balance of power, occasioned by the flow of funds to the oil producing nations. There has also been a challenge to U.S. hegemony in the breakdown of the international monetary system caused by speculation in raw materials. Building a world-wide system of energy commodities would restore monetary stability.

National sovereignty may have to be given up so that the western powers can act together to produce solar and nuclear energy and share resources equitably. Because of their unequal distribution, coal, oil and water power may have to be internationally held.

The growing disparity between the rich, industrialized countries and the poor countries is not only a humanitarian concern, but with the proliferation of nuclear weapons, a great threat to the peace. 30% of the world's population cannot continue to consume 90% of the world's resources.

We cannot hope to raise the whole world to the current level of energy consumption in the U.S. There are absolute but unknown limits to the over-all level of power production from fuels, fossil or nuclear, and to the density of such production in specific areas. The energy balance in the atmosphere which determines climate is a delicate one and imperfectly understood. But at some point climate, which depends on small differences between large quantities of energy, will be affected and we cannot contemplate open-ended production from fossil or nuclear fuels.

The less affluent countries want the richer ones to share both food and fertilizer. Waste of energy in the developed country could be cut in order to share resources. The import of technology is not felt to be an adequate solution. Moreover, it is asserted that unguided high technology has been rather damaging in certain cases: ecological vulnerability has increased, and increased crop production has benefited large land holders, while driving poor rural residents to the cities in mass. Modern housing has been less efficient and comfortable than native types, and the cost of mechanical and urban advances has put countries badly into debt.

In their own interest, less developed countries may find it necessary to change from a cash crop economy to a diversified food-growing pattern simply to feed their population.

## Conclusion

Such diverse personalities as economist Gunnar Myrdahl, consumer advocate Ralph Nader, and Episcopal Bishop Paul Moore, Jr. agreed that to survive there must be a moral and spiritual revival - fostering the wisdom of working for the public good. Myrdahl, to be sure, has little faith in this. He quite evidently has become pessimistic. He said that the belief that the third world will limit its population growth is a fantasy. And that if President Ford's economic policy is the policy for handling inflation, "we are going to hell". He has begun to feel that belief in the efficacy of books and rational thought is an outmoded religion. His plea, like Bishop Moore's, is for solidarity and compassion. He said, "Let those who have hope, work".

The session ended with the story of the airline pilot whose voice came over the intercom announcing: "I have good news and bad news for you. I'll give you the bad news first. We're lost. Now for the good news. We're making excellent time."

## Appendix I. The Program

### *Plenary Session, 9:00 a.m. to 12:00 p.m.*

Barry Commoner; Washington University (Chairman)  
 Abdullah Yaccoub Bishara; Permanent Representative of Kuwait to the United Nations  
 John R. Bunting; Chairman, First Pennsylvania Banking and Trust Company  
 Jack W. Carlson; Assistant Secretary of the Interior for Energy and Minerals  
 Arnold Miller; President, United Mine Workers of America  
 Ralph Nader; Consumer Advocate  
 The Rt. Rev. Paul Moore, Jr.; Episcopal Bishop of New York (Closing Remarks)

### *Convocation Luncheon - 12:00 p.m. to 2:00 p.m.*

Chairman: Alfred P. Slaner; President, Kayser-Roth Corporation  
 Address: Barry Commoner  
 Comments on the Global Outlook: Gunnar and Alva Myrdahl

### *Afternoon Panels - Session One - 2:00 p.m. to 4:00 p.m.*

I Using Energy More Efficiently. An examination of past wasteful use of the world's energy resources and of more efficient and ecologically sound ways of using energy and other resources.

Eric Burhop; physicist, University College, London

Norman Cousins; Editor, *Saturday Review/World* (Chairman)

M. Taghi Farvar; Chief, Human Environmental Division, Dept. of Environmental Conservation, Iran

Bruce Hannon; Energy Research Group, Center for Advanced Computations, University of Illinois

Elizabeth Helander; Member of the Finnish Academy, planner in the Finnish Ministry of the Interior

Felice Ippolito; Professor of Geology, University of Milan

M. C. Verghese; U. N. Industrial Development Organization

II Controlling Supply and Price of Energy. Comment on the implications of energy shortages for different segments of society and for both rich and poor nations, and a discussion of peaceful means of transition to a more rational scheme of energy distribution.

Colonel Albert de Smael; President, Belgian Association for European Security and Cooperation

Charles McC. Mathias; U.S. Senator from Maryland (Chairman)

Felix Pena; Institute for Latin American Integration, Buenos Aires

Christopher Rand; free-lance writer, San Francisco  
 G. V. Subba Rao; Chief, Energy Section, United Nations  
 Michael Tanzer; President, Tanzer Economic Associates  
 Studs Terkel; author of Hard Times and Working

*Afternoon Panels - Session Two - 4:00 p.m. to 6:00 p.m.*

- III Future Energy Sources. An evaluation of the environmental, political, and economic consequences of possible future energy sources, such as solar energy and nuclear power, and an examination of the speed and ease with which each can be developed.  
 James Abourezk; U.S. Senator from South Dakota (Chairman)  
 Adil Hassib; Dept. of Physics, University of Khartoum, Sudan  
 Gerhard Kade; Institute for Social and Economic Planning, Darmstadt, West Germany  
 Henry Kendall; Professor of Physics, M.I.T.  
 Carolyn Konheim; Executive Director, New York Scientists' Committee for Public Information  
 Ishrat H. Usmani; United Nations Environment Programme  
 Alvin Weinberg; Federal Energy Administration; former Director, Oak Ridge National Laboratory
- IV Economics and the Energy Crisis. A view of the national and global economic effects of the energy crisis - including inflation, disruption of capital markets, and severe shortages of food in many countries - and a look at proposals to deal with these dislocations and avert international conflict over energy.  
 Bella Abzug; U.S. Representative from New York (Chairman)  
 James P. Grant; President, Overseas Development Council  
 Mahbub ul Haq; Senior Advisor, World Bank  
 Paul N. McCloskey, Jr.; U.S. Representative from California  
 Tomas Morales Cardona; School of Medicine, University of Puerto Rico  
 Francesco Pistolese; Center for Studies in Economic Policies, Italy  
 Ali Shams; Center for the Biology of Natural Systems, Washington University

Appendix II. Statement of Participants in the Convocation on the Energy Outlook and Global Interdependence

In rapid succession, a series of crises have confronted the world. The speed with which these crises have followed one another, and the basic issues they reveal are a sign that they are closely linked. Now we are faced with a new crisis - this time in energy - which appears to hold the key to them all.

The United Nations Conference on the Environment taught us that environmental degradation often stems from the wasteful use of energy resources; the World Population Conference that population growth cannot be slowed until development is speeded, for which energy is a key requirement. The World Food Conference taught us the people are starved for food partly because they are starved for energy; the U.S. Special Assembly on Resources that energy is inequitably distributed and that other resources cannot be used when energy is in short supply or inordinately expensive.

The energy crisis is the vital link that connects all these problems to the overriding threats of a worldwide economic crisis and international tensions that may catapult the world into a new war.

The world cries out for a supreme effort to harmonize the separate nations' needs for resources, to build the economic stability that is essential to the efficient use of these resources, to establish the lasting peace that every nation must have if the wealth of the world is to be devoted to human welfare and social justice.

Attempts to create competing or antagonistic blocs of oil producing countries and oil consuming ones, of industrialized countries and developing ones, can only worsen these problems, not solve them. Energy and economic problems are many-sided; their solution

requires the best efforts of both consuming and producing nations, both socialist and capitalist nations, both developed and developing nations.

The problems raised by the energy crisis and by its close links to the world economy and to the organization of each nation's economic system can be solved - but not easily. Every nation needs to confront these difficult issues at their source - which is the design of the economic system that governs how resources are distributed and used.

The world possesses the technological capability to solve these problems. What is now needed is the wisdom and the will to confront the deep-seated economic, social and political issues that have thus far hindered the effective use of this capability.

Although each crisis may spring from problems that are local and regional in character, all are truly worldwide in their effects. One after another, they have been addressed by the United Nations, and properly so, since it is our one worldwide organization.

We now call upon the United Nations to complete this net of interlocking actions by developing a worldwide energy program.

No one can now prescribe what is to be done; but we must begin by defining the issues. Among them are the following, which it is our hope a new U.N. Energy Programme, perhaps initiated by a worldwide Energy Conference, will consider:

- How international economic and monetary relations can be designed to avoid disruption due to the elevated price of energy, energy-intensive products and food.
- How to relieve developing nations of the huge financial burden generated by elevated energy costs, for example by a moratorium on the payment of their debt service.
- How to make effective use of the readily available means of conserving energy, especially in industrialized countries, that sustain productive output by reducing the non-productive waste of energy.
- How national economic systems can be designed to maximize the efficient production and use of energy.
- How to develop a pattern of distribution of energy and energy-intensive goods such as fertilizer among nations that maximizes the resultant output of food and other goods, especially in developing nations.
- How to enable developing countries to develop their own indigenous energy sources.
- How to free poor countries and dependent ones such as Puerto Rico from the burden of exploitation by international oil companies, both in the marketing of oil and in the processing of petrochemicals.
- How to develop means of producing energy that conserve non-renewable resources, that make the most effective use of renewable sources such as solar, geothermal and organic energy and harmonize with the need for environmental quality.
- How to evaluate the special hazards of the use of nuclear power and to reduce both this problem and the associated military threat, for example by using such reactors as a means of converting the stockpile of nuclear weapons into useful energy.
- How to use the technological skills of industrialized countries to help developing ones to create productive technologies that are suitable to their own resources, especially in natural materials and labor.

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