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FROM: DUE: / /

EDO CONTROL: G20010401  
DOC DT: 09/14/01  
FINAL REPLY:

James A. Lake  
American Nuclear Society

TO:

Chairman Meserve

FOR SIGNATURE OF : \*\* GRN \*\*

CRC NO: 01-0477

DESC:

Reducing Global Carbon Dioxide Emissions

ROUTING:

Travers  
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Kane  
Norry  
Craig  
Burns/Cyr

DATE: 09/24/01

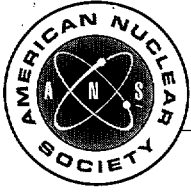
ASSIGNED TO: CONTACT:

RES Thadani

SPECIAL INSTRUCTIONS OR REMARKS:

For Appropriate Action.





## AMERICAN NUCLEAR SOCIETY

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September 14, 2001

Chairman Richard A. Meserve  
Nuclear Regulatory Commission  
One White Flint North Building  
11555 Rockville Pike  
Rockville, MD 20852

Dear Chairman Meserve:

The American Nuclear Society (ANS) wishes to advise you of a significant policy statement issued by the International Nuclear Societies Council (INSC) on the issue of reducing global carbon dioxide (CO<sub>2</sub>) emissions. The INSC represents 39 scientific nuclear societies world-wide, including the ANS, and consists of more than 50,000 nuclear science and engineering professionals from around the world. The INSC has been very concerned about the issue of global climate change, and in particular, the role that nuclear energy can play in reducing CO<sub>2</sub> emissions.

The enclosed policy statement is a consensus statement prepared to advise senior policy makers on the very important issue surrounding global climate change and nuclear energy's capability to contribute to the reduction of CO<sub>2</sub> emissions. As you may be aware, at its most recent meeting of the Conference of the Parties in Bonn, nuclear energy was specifically excluded from clean development mechanisms that would credit nations using nuclear energy in their efforts at reducing CO<sub>2</sub> emissions. The INSC and the ANS believe that this action is a strategic mistake and should be reversed. If one objectively looks at the facts surrounding nuclear energy, and the demonstrated capability of reducing CO<sub>2</sub> emissions, it is quite clear that nuclear energy can and should play a role in reducing greenhouse gas emissions.

As the United States prepares to seek alternatives to the implementation of the Kyoto accords, we recommend that you review the enclosed policy statement and set the United States on a track that can meaningfully reduce CO<sub>2</sub> emissions using nuclear energy as part of the global solution.

Should you have any questions regarding the policy statement, or would like additional information, please do not hesitate to contact Mr. Doug Wasitis, American Nuclear Society Representative, 805 15<sup>th</sup> Street, NW, Suite 700, Washington, DC 20005; telephone: 202/312-7482; fax: 202 312-7401; or, email: [<dwasitis@bakerd.com>](mailto:dwasitis@bakerd.com).

Sincerely,

A handwritten signature in cursive script that reads "James A. Lake".

James A. Lake  
President, 2000-2001

Enclosure

## REDUCING GLOBAL CARBON DIOXIDE EMISSIONS

### A statement by the International Nuclear Societies Council

The International Nuclear Societies Council believes that the world's capacity for generating electricity from nuclear energy must be increased substantially if we are to meet the ambitious targets for reducing worldwide emissions of carbon dioxide while also meeting the projected growth in demand for electricity.

Unfortunately, no progress has been made in meeting the target of the 1992 Rio Accord to reduce carbon dioxide emissions below 1990 levels by 2008-2012. In fact, world carbon dioxide emissions have increased since 1992. During the 6th Conference of the Parties (COP-6) to the United Nations Framework Convention on Climate Change (UNFCCC) in November 2000, delegates failed to reach agreement on implementation mechanisms and related matters.

As a result, at the upcoming COP-7 in October 2001 it is essential that nuclear power be included in the list of energy technology options made available for use by nations seeking to achieve the UNFCCC targets and to fulfill the promise of the Rio Accord. More specifically, because of its unquestioned contribution to reducing carbon dioxide emissions, nuclear power should be included in the Clean Development Mechanism (CDM) framework, one of the UNFCCC's methods allowed for achieving the required reductions.

Today, about one-quarter of the world's carbon dioxide emissions come from the United States, one-quarter from the rest of the OECD countries, and the remaining one-half from the rest of the world. The world's total carbon dioxide emissions are expected to grow from 21 billion tons in 1990 to 36 billion tons in 2020. France has successfully demonstrated a credible record for reducing carbon dioxide emissions, where 75% of the electricity is produced by nuclear plants. This is a clear example of the way forward for other industrialized countries that do not wish to sacrifice economic growth for carbon dioxide mitigation (see figures on page three).

Conservative scenarios<sup>1</sup> suggest that world **energy** demand will double by the middle of the century. Energy demand in developing countries is growing by 3.5% per year, much faster than in OECD countries, with these developing countries already accounting for over 30% of the global total. The World Energy Council's statement 2000 (*Energy for Tomorrow's World - Acting Now*) pointed out that meeting the energy requirements of some two billion people without current access to commercial energy services and those people who will be born in the next two decades should be regarded as the first test of **sustainability** of our energy development path. Provision of electricity while minimizing greenhouse gas emissions is **fundamental** to this endeavor.

World **electricity** demand, expected to grow at a greater rate than world energy demand, is likely to triple by 2050, again with a major component in the developing countries. The demand for electricity will be for continuous, reliable supply on a large scale (i.e., base-load power), as at present.

With these forecasted patterns of energy/electricity growth, reductions of 20% in emissions from OECD countries will not achieve a global reduction in carbon dioxide emissions. Projected growth elsewhere would cause significantly higher world emissions by 2020 (Table 1). In fact, energy efficiency and conservation gains in OECD countries in the 1970s and 1980s, in response to the oil shocks, make further efficiency and conservation gains in these countries difficult and costly. Therefore, in order to have any real impact on reducing future carbon dioxide emissions, the principal emphasis needs to be on increasing the utilization of energy sources other than fossil fuels.

Some renewable energy sources can contribute to the solution. The only large-scale renewable source today is hydro-electricity, providing about 18% of the world's electric power. There is limited capability for expansion of hydro-electric resources around the world, and such expansion may raise environmental issues.

Solar and wind generation of electricity will play an increasing role as technology improves. These sources are not expected to take over the burden of meeting base-load demand for continuous, reliable, power due largely to the limitations of nature for such a function.

Nuclear power is the only well-proven electricity option available that can substantially reduce carbon dioxide emissions. After more than four decades of development, it currently provides about 16% of the world's electricity, as much as from all sources worldwide in 1960. It is practically a zero-carbon emission energy source, avoiding the emission of about 2.3 billion tons of carbon dioxide per year, relative to coal. The safety record of the Western technology-based nuclear power plants is excellent, with almost 10,000 commercial reactor-years of experience. Furthermore, the industry safely contains and manages its radioactive wastes. Technology for permanent disposal of wastes is well developed, but actual implementation and operation of waste repositories are awaiting responsible government leadership and action in several countries.

Nuclear energy is also a sustainable energy option. As well as its environmental virtues, its fuel sources are readily extendable for hundreds of years using already demonstrated technology.

Economically, nuclear energy is competitive in many countries. For new plants, capital costs are a major factor, with fuel and other operational costs being relatively small. Thus, once built, nuclear power plants can produce electricity at a predictable cost almost regardless of fuel price fluctuations. In recent years, gas-fired plants built at very low capital cost have made new nuclear plants uncompetitive where cheap piped gas is accessible, but more recently the rising prices of gas has greatly changed this comparison. Further, gas-fired plants are very vulnerable to fuel price escalation, creating hardships for people and the economy. The burning of natural gas depletes one of our most versatile and valuable fuels and chemical feedstocks. The burning of natural gas is neither sustainable nor consistent with reducing carbon dioxide in our environment.

Thus, the International Nuclear Societies Council believes that governments should acknowledge the significant role of nuclear energy in minimizing carbon dioxide emissions today, and should support the inclusion of nuclear power as an energy technology option in the Clean Development Mechanism (CDM) framework at the UNFCCC's COP-6/7 Meetings.

Table 1

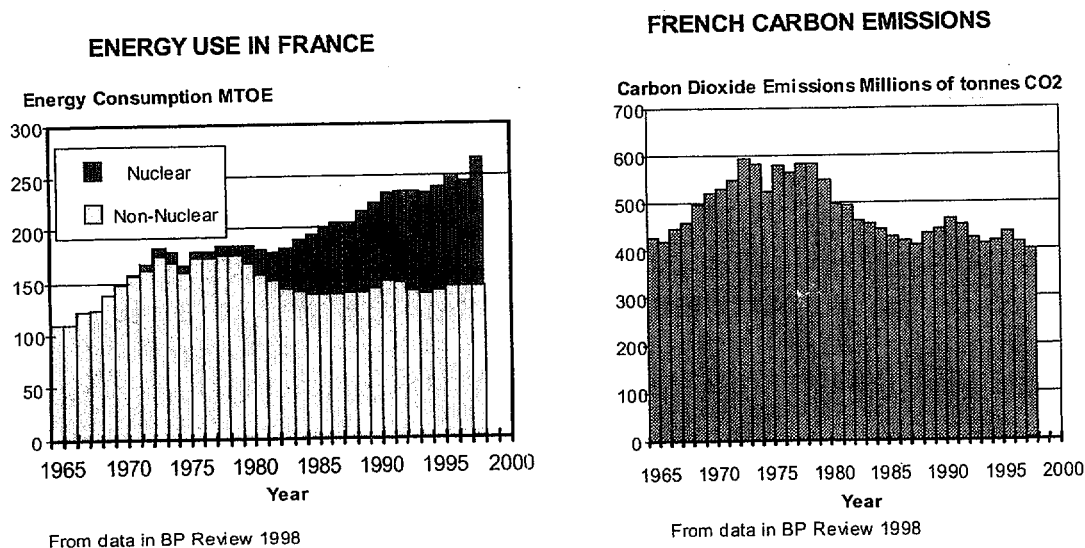
Global Carbon Dioxide (CO<sub>2</sub>) Emissions by Region and by Sector<sup>2</sup>  
(Millions of Tons of CO<sub>2</sub>)

Emissions	World	OECD	Transition Economies	Developing Countries
1990	20,878	10,640	4,066	6,171
1997	22,561	11,467	2,566	8,528
2010	29,575	13,289	3,091	13,195
2020	36,102	14,298	3,814	17,990

References

1. OECD IEA *World Energy Outlook*, 1998; IIASA/WEC *Global Energy Perspectives*, 1998.
2. IEA, *World Energy Outlook*, December 2000.

Figure 1. Effect of Nuclear Program on CO<sub>2</sub> Reduction in France





Approved by

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**Nuclear Energy Society Taipei, China (NEST)**  
**Pakistan Nuclear Society (PNS)**  
**Sociedad Nuclear Mexicana (SNM)**



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