

# IS NUCLEAR POWER PART OF THE SOLUTION?

## Recommendations on Meeting Long-Term Global Energy Needs

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Various long-term global energy scenarios indicate that, during the coming century, energy use will double by the year 2050 or triple by the year 2100. Such scenarios should be viewed not as forecasts, but as a contribution to developing perspectives on the future. They do however indicate that it will be necessary to have energy resources available to meet significant increases in energy use if the global economic development, which is particularly critical for developing countries, is to occur.

This is not a new message. In *Our Common Future*, published in 1987, a group of eminent persons chaired by Gro Harlem Brundtland addressed a proposed "global agenda for change." The commission stressed the need for concerted, long-term action to assure sustainable development for the world. The commission chapter on energy began as follows:

"Energy is necessary for daily survival. Future development crucially depends on its long-term availability in increasing quantities from sources that are dependable, safe and environmentally sound. At present, no single source or mix of sources is at hand to meet this future need."

Given this statement, one might believe that nuclear power could be viewed as one energy resource to help meet increasing long-term needs for energy

and growing concerns about environmental pollution and climate change.

This bulletin comments briefly on the role nuclear power could play in meeting global energy needs for long-term sustainable economic development, and steps which should be taken by the nuclear power community if nuclear power is to play such a role appropriately.

### Long-Term Energy Needs

On a regular basis, the International Energy Agency, the World Energy Council and other institutions publish long-term energy outlooks. These outlooks all show very significant increases in energy demand in the coming century, using assumptions ranging from business-as-usual to heavy emphasis on significant improvements in environmental performance.

All scenarios assume that energy use will increase dramatically in developing countries. Since the energy use of most developing countries is now only a fraction of that used in developed countries, such increases are to be expected and fostered.

It is critical, while looking to the future, to balance economic growth, energy use and environmental performance. It is also imperative to think realistically about the potential for moderating energy demand growth (with minimal adverse

economic impact) by increasing energy efficiency and/or energy conservation. The economic availability of energy resources, whether renewables, oil, gas, coal, or nuclear, must also be considered.

Over the past two and a half years, taking the above considerations into account, the Atlantic Council undertook an extensive international project to look at an appropriate role for one of these energy resources, nuclear power, as we enter the next century. The project involved more than 70 energy experts, economists and social scientists and developed two consensus reports on the future role for nuclear power (see references on page 4, below).

This work demonstrates that a wide range of energy resources will have to be available to meet world economic growth needs in the coming century. Economic viability of each of these energy resources is a critical factor in making choices among energy resources. It is also a critical factor in helping a society make appropriate choices in how public and private funds are allocated between, say, education, social benefits, and support for energy resources. For example, long-term government subsidies in support of an energy resource use funds that might be available to meet pressing social needs.

### **Recommendations**

Based on my involvement in the Council's project in the past three years, I believe that nuclear power should continue to play an important role in meeting long-term energy needs. I wish to propose the following recommendations to members of the nuclear community as they address long-term economic growth, energy use, and the related issue of the environment:

1) Greater stress should be placed on the role nuclear power should play in helping assure long-term sustainable economic development. Outreach to leaders of other energy sectors, economists and environmentalists should be increased to emphasize the role nuclear power can play in sustainable

development. Such efforts might include seminars on sustainable development and discussions on scenarios for the future taking into account a range of assumptions. In this regard, scenarios developed by the International Institute for Applied Systems Analysis could provide an interesting tool for interacting with policy-makers and others interested in the future of nuclear power (pro and con) to discuss the range of energy futures.

2) There may be a danger in placing too much stress on the reduction of greenhouse gases and other air pollution without adequate attention to economics, safety, and security. Gerald Doucet, the secretary general of the World Energy Council, pointed out in an October 1998 speech to the European Nuclear Council that international trading between the former Soviet Union and Central and Eastern European countries having low emissions of greenhouse gases could "go a long way to achieve compliance with the Kyoto protocol." This would weaken the rationale for nuclear power as an approach to reducing greenhouse gases. In addition, Paul Portney, president of Resources for the Future, in a keynote address to the United States Energy Information Administration annual outlook conference (March 1999) answered the question "Does Kyoto have a future?" as follows: "...I can find virtually no one—in government, in the environmental advocacy community, in business or in the press—who thinks that the Kyoto protocol has even the proverbial snowball's chance in hell of coming into effect in anything approaching current form. This is every bit as true internationally...as it is in the United States." If this is the case, it may be best not to place too much weight on Kyoto.

3) Governments and the public should be made more aware of international, national, and corporate efforts to address the dual-use aspects of nuclear technology. The treaties and institutions which deal with these issues are not well-known by the public, and it is difficult to develop the interest of the public or policy-makers in these rather arcane subjects. As a minimum, company publications and web sites should address this subject. Seminars for selected media and governmental representatives could also be conducted.

Finding solutions to the problem of accumulating spent fuel at reactor sites is critical to the future use of nuclear power. Actions at the international and regional levels may be an answer. In remarks at an International Science and Technology Center seminar in June 1998, Christian Stoffaes, executive secretary of the E7 group of utilities (which consists of seven major utilities from the G7 group of industrialized nations), emphasized the need for a global debate on a treaty which would set up international storage sites under UN supervision. While such an approach may not be viable, a debate on this subject could demonstrate the industries interested in this sensitive subject.

4) Greater efforts should be undertaken to assure the economic competitiveness of nuclear power plants in the long run. While technological advances can play a key role, other critical factors include: management competence; training; regulatory practices; design standardization; and in particular, the competitive performance of other energy systems. Deregulation of the electric utility sector may lead to consolidation of nuclear generating plants in companies specializing in this field with possible increases in efficiency and effectiveness.

5) The nuclear industry should invest to a greater extent in social science efforts to reach a better understanding of public views on nuclear energy and how these views influence public and

government actions. A 1997-1998 action plan by the International Nuclear Societies Council, *Achieving Public Understanding and Acceptance of Nuclear Power*, discusses public understanding and acceptance of nuclear power in some detail. Communication challenges identified in the paper include: public participation in determining the need for nuclear energy; determining public acceptability of various options for development of nuclear power; providing information to policy-makers and regulators regarding technology; responding to public questions with technical and social solutions; and obtaining community agreement on construction of facilities. These subjects are all difficult to address, in particular when public interest is only high when a problem occurs. However, given public sensitivities, it is important to earn the right to speak out by trying to communicate effectively on a continuing basis.

### **Conclusion**

In conclusion, I believe nuclear power can be part of the solution and play an increasing role in providing energy for sustainable development. This desirable goal can be achieved if (a) more attention is devoted to economic, social, and safety questions relating to nuclear; (b) there is increased in-depth networking with others sharing an interest in balanced development; and (c) the industry increases public awareness of its commitment to non-proliferation.

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