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**Oral Testimony on National Energy Policy:
The International Future of Nuclear Power**

Thank you, Mr. Chairman.

Mr. Chairman, we at CSIS are nearing completion of a detailed examination of the geopolitics of energy out to the year 2020, a study cochaired by former Senator Sam Nunn and by James Schlesinger, former Secretary of Energy and of Defense. There are four Congressional cochairs: Senators Murkowski and Lieberman, and Representatives Taucher and Gilman.

I would like to share with you our preliminary findings and policy considerations, inasmuch as they have particular relevance to current and future U.S. energy policy and in particular to future nuclear power policy.

Let me begin with our key findings:

- By the year 2020, the developing countries of the world will be consuming more energy, in absolute amounts, than the industrialized countries of the world.
- In relative terms, the share of oil, coal and nuclear power, in terms of total energy consumed, will each decline. The share of renewables, largely hydropower, will be unchanged. The share of natural gas will increase.
- By the year 2020, two-thirds of all the oil produced in the world will come from the Gulf, as compared with just 41 percent this year.
- A growing influence of non-governmental organizations (NGOs) on energy supply and demand will come at the expense of host governments.
- Terrorism as threat to physical infrastructure and cyberterrorism as a threat to operating infrastructure will be of increasing concern.
- Global warming is attracting increasing attention and that, combined with the energy appetite of the developing world, holds tremendous implications for all of us.

I want to isolate a particular finding. Our estimates indicate that electricity will be the most rapidly growing form of energy use during the years 2000 to 2020. This growth, not surprisingly, will be concentrated in the developing countries, where electricity use will more than double. As the developing countries enter the electricity age, a particular concern emerges:

- Can adequate electricity supply be developed in these countries while at the same time protecting the environment?
- What can we do to help assure that the developing world has a full range of energy choices available to them?

Clearly, all will benefit if developing countries have access to adequate, clean, and secure sources of energy. At the same time, they will not place environmental policy ahead of economic growth. To assist these consumers, it is essential that clean coal technology is a viable option, given their high coal consumption.

Equally important, nuclear power must be promoted as a viable option in the developing world, to supply electricity in rural areas and to promote general industrialization, while keeping nuclear power as a viable option in the developed world.

Let me ask, does the United States have a forward-looking plan for nuclear power? No, it does not. Does Russia? Yes, the Minister of Atomic Energy recently stated that there are plans to quadruple the generation of nuclear electric power by the year 2030. Does China? China today has 10 nuclear reactors under construction and will build 20 nuclear power stations by the year 2020. Does Japan, despite a recent shift in public opinion? Yes, the government currently plans to add 20 new reactors by the year 2010.

I can visualize our leadership slipping away.

The nuclear option faces a difficult choice:

Exercise the nuclear option, through government support (it is our judgment that the market alone won't do it).

Or

Accept that pollution will worsen.

I noted earlier that the relative share of nuclear electric power in the worldwide consumption of energy will decline over the coming years. This decline will lead to a commensurate increase in worldwide carbon emissions, at a time when the world is increasingly aware of the need for emissions-free energy, and at a time when the developing world is confronted with dramatically large future energy requirements.

How can we respond? We propose a government/private sector partnership, to fund R&D efforts to design a fourth generation of nuclear reactors-

- Smaller in size
- Producing less toxic waste
- Using a nuclear fuel having little military application.

Our assessments through the year 2020 stress prospects for instability and interference in energy supplies, but only to alert policy makers as to just how fragile timely supplies of energy really are.

What lies beyond the year 2020? I cannot say with any particular degree of certainty, other than anticipating mounting pressures on adequate supplies of energy, particularly energy with minimal pollutant levels. And that means nuclear, hydro and other renewables.

The future for hydroelectric generation is rather dim. Little unexploited potential remains. Indeed, there are pressures even today to remove hydropower dams in place because of various environmental concerns. And whenever an oil supply crisis emerges, a call for greater use of solar, wind, geothermal, and biomass inevitably arises. Their future is always just around the corner but we have yet to turn that corner and I cannot say for certain that we ever will.

That leaves the nuclear option. The nuclear industry is far more regulated than are competing forms of energy. With electricity becoming more essential to our way of life, is it not time to develop a set of criteria to measure the effectiveness of the individual forms of power generation, to give nuclear energy the benefit of a level playing field?

Thank you, Mr. Chairman.