THE NEW ATLANTIS
A Journal of Technology & Society

'A Critical Part of the Solution'

Al Gore and the Nuclear Debate

On March 21, 2007, the Environment and Public Works Committee of the U.S. Senate hosted former Vice President Al Gore for a hearing on the subject of global warming. In the course of discussion, Senators Johnny Isakson and Lamar Alexander (Republicans from Georgia and Tennessee respectively) inquired about Gore's views on nuclear energy. Of particular interest is the exchange between Gore and Alexander, as former and current senators from Tennessee, which is home to the Oak Ridge National Laboratory, a major hub of nuclear energy research. The following excerpts from the hearing transcript have been lightly edited for clarity.

Senator Isakson: Mr. Vice President, I'm a big believer in finding positive solutions, so I'd like to look at two things for a second. Utilities, the generation of electricity, the manufacturing of goods and services are significant contributors [to the production of greenhouse gases] and are oftentimes demonized, yet, in fact I think they're a route to the solution to many of the problems we face.

For example, if you can't burn coal because of carbon, and if natural gas increases [in price] five, six, seven times what it was a few years ago—which it has—and yet you do want to provide the energy to manufacture, to heat homes, etc., it seems to me that nuclear energy is certainly a major part of the solution. And one of the things that frustrates me is every time I listen to people talk about the things that we need to do to solve environmental problems, one of those things that's never mentioned by those advocates is the great efficiency, lower cost, and non-polluting effects of nuclear energy. Do you think nuclear energy and its generation of power is a part of the solution?

Mr. Gore: I think it's likely to be a small part of it. I don't think it will be a big part of the solution, Senator. I used to represent Oak Ridge, where we're immune to the effects of radiation, so I used to be more enthusiastic about it. I'm more skeptical today for a lot of reasons, and the main one is cost. I'm assuming that we will somehow find an answer to the problem of long-term storage of waste. I think Yucca Mountain is deficient. I'm assuming that we will find an answer to the problem of errors by the

operators of these reactors. I've been to Three Mile Island; I went to Chernobyl. And the whole industry is affected when there's one of those. But I'm assuming those can be solved.

Now, for the eight years I was in the White House, every nuclear weapons proliferation issue was connected to a reactor program. And that's a problem if the world wanted to make nuclear power *the* Option A for the whole world. It would make that problem worse. But the main problem I think is economics. The problem is these things [nuclear reactors] are expensive, they take a long time to build, and at present, they only come in one size—extra-large.... [Because of uncertainty in energy prices, utility managers are] reluctant to bet all their construction budget on very large increments that take a long time and have certain other fragilities associated with them.

In the Tennessee Valley Authority (TVA), I forget the precise numbers, but when I came to the Congress in the seventies, we had something like twenty-one reactors under construction. About nineteen of them had to be cancelled after the oil crises of 1973 and 1979. And you may get the same questions I used to get, Senator Alexander, about whether or not those partially completed cooling towers could be used for grain silos. People are still unhappy about having to pay for the ones that were not completed.

And so I think [nuclear energy will] play a small role in some areas, but I don't think it's going to be a big part of the solution....

Senator Isakson: Chernobyl was terrible, and it was in part an engineering and a lack of standards disaster. Three Mile Island, in fact, I think was a credit to the American nuclear regulatory authorities that what could have happened and did in Chernobyl didn't happen in America. But I can't imagine how we would work our way to a positive solution if nuclear energy is not a key component because of its capacity to build and its capacity to generate and its capacity to provide economical, nonpolluting energy. So hopefully, it will be a part of this debate because in the end it's a critical part of the solution....

Mr. Gore: I do agree with you, that it needs to be a part of the debate—I just happen to think it's going to be a smaller part. Take China, for example. We talked about it earlier. In their five-year plan right now, they're projecting 55 new thousand-megawatt coal-fired generating plants every year [but] only three nuclear plants. Now they don't have to worry about public opposition....They're looking at the same economics of the long lead construction and the cost and some of the uncertainties.

Now, there's a new generation of reactors coming along that has a smaller increment. They may be more reliable and more standardized. We may get a solution to the waste issue.

So I mean, I'm not a reflexive opponent of nuclear—I just happen to think it's only going to play a small role....

Senator Alexander: I hope you'll continue thinking about nuclear power, because as I've gotten more into this

over the last three or four years, it looks to me like if you really want to solve the climate change issue—the carbon problem—in a generation, that nuclear power is a big part of it. Because as I think of our big economy consuming about 25 percent of the energy in the world, and I think of ways to produce a lot of electricity, and let's just start with electricity, it seems to me there are only three ways to produce big amounts right now, in the near term. One is conservation and efficiency. That ought to be the easiest and the first thing to do, and you've talked about that. Two is nuclear, and three is coal.

Nuclear today produces, I believe, 70 percent of our carbon-free electricity, although it's only 20 percent of our power. That's a startling fact to me. I mean, if we're worried about the next ten or fifteen years, and nuclear is 70 percent of our carbon-free, then I would think we might want to do more of it.

And the cost—you're right. It does cost more to build the big plants, but plants are becoming cheaper, it looks like. TVA is about to complete a new one on-cost and under-budget. But once they're up, it's the cheapest power to operate; it's two cents. Coal is next; it's three cents. If we add new carbon recapture technologies, coal is going to go up. And then gas is higher than that, and there's a big question about whether we really want to encourage everybody to switch to gas. So without getting too far into it, the conclusion I've come to is that in the near term, despite the proliferation and waste issues, which are real issues, that if we want big amounts of carbon-free energy in the United States, that we ought to take nuclear very seriously.

Mr. Gore: I think there's a fourth, along with conservation and efficiency, coal and nuclear. I think the biggest source is widely-distributed small-scale generation in a smart grid or electronet.... There's so much [venture-capital] money going into developing these technologies—the new-generation photovoltaics, the new-generation windmills, you couple that with the conservation and efficiency, new-generation enzymatic hydrolysis, producing on a small scale. I think that the old thinking—I'm not using that as a pejorative phrase—but I really and sincerely believe that the old way of thinking is big, centralized, whether it's government or corporate management or whatever, big, centralized units where everything goes out from the center.