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INTERVIEW WITH SENATOR BOB GRAHAM (D-FL) ON NUCLEAR ENERGY POLICY

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U.S. Senator Bob Graham, a Democrat from Florida, has become a leading Congressional voice on United States policy on energy and environmental issues including commercial nuclear power. In the attached interview Senator Graham expresses concern over the potentially serious consequences of global warming, particularly in Florida, and predicts that Congress and the Administration will make critical decisions on combatting global warming between 2001 and 2005. He argues that the Federal government should "create an environment" in which nuclear energy's share of the U.S. generating mix can stabilize and eventually increase, and discusses specific steps the Federal government can take to create such an environment.

Graham advocates having a strong diversity of generating sources for the sake of national security, economics and environmental protection. He also stresses the importance of international nuclear safety standards and raises the notion that nuclear supplier states could agree to export only to countries that demonstrate their commitment to such standards. Graham supports pending U.S. legislation on nuclear waste management, and suggests that changes that have been made to the bill could make it easier for Congress to approve it with margins that would withstand President Clinton's planned veto.

Senator Graham is currently serving in his third term in the Senate, having been most recently reelected in 1998. First elected to the

Senate in 1986, Graham is a high-ranking member of key committees in the Senate with jurisdiction over nuclear energy issues, including the Energy & Natural Resources and Environment & Public Works Committees. Within these committees, Graham serves as the senior-ranking Democrat on subcommittees dealing with nuclear research and development and nuclear regulation. He also sits on the powerful Finance Committee.

Graham received a doctor of law degree from Harvard Law School in 1962. He attended the University of Florida as an undergraduate, receiving his bachelor's degree in 1959. Graham brings a bipartisan approach and moderate ideology to his role as Senator. His distinguished political career began in 1966, when he was elected to the Florida State Legislature where he served for twelve years. In 1978 Graham was elected the 38th Governor of Florida, serving two consecutive four-year terms. Since his election to the Senate, Graham has been a leader on issues including fiscal responsibility, health care, retirement security and environmental protection.

Numark Associates' interview with Senator Graham is the first in a planned series of interviews of key figures in U.S. nuclear energy policy since we issued the *Nuclear Top Ten, 1999* report in April 1999. The interview with Senator Graham can also be accessed at www.numarkassoc.com/policy/graham.htm. The *Nuclear Top Ten* report is also available on the Numark Associates website.

BOB GRAHAM
U.S. SENATE



NA: Senator Graham, you have become increasingly involved in nuclear energy matters since your election to the Senate in 1986. Can you begin by explaining your background and interest in this field?

to be on one of the environmental committees. I started out on the Environment & Public Works Committee and served as chairman of the subcommittee overseeing NRC. Now, I've also become a member of the Energy &

GRAHAM: I am not by any means a nuclear engineer. My interest in nuclear energy comes from several aspects of my personal history. One, as Governor of Florida I was involved with our three clusters of nuclear plants, two of which are run by Florida Power & Light and one by Florida Power Corporation. Particularly with the FP&L plants we've had a very good experience. They've avoided the pitfalls of budget bloat and delays in construction -- that was not even particularly controversial -- and while there have been some ups and downs these plants have generally been well managed. Right now, I believe that two of the FP&L plants have gotten the highest ratings that the NRC gives. Second, Florida has what is called a Power Plant Siting Act in which the state predetermines not the type of facility, but where facilities will be located taking into account a variety of factors including safety. That has tended to moderate public opposition not only to nuclear but to any power source.

Furthermore, when I came to the Senate I wanted

Natural Resources Committee which has the rest of the jurisdiction over the industry. So I've had the chance to see the full sweep of Federal involvement.

Strategic Environmentalism

I also consider myself to be, if this is not too arrogant, a "strategic environmentalist," meaning that I try to focus on the big picture. One aspect of that big picture is the question of global warming. I personally am satisfied that there is enough scientific evidence that the planet is going through a change in climate that is more than just episodic and is linked to the buildup of greenhouse gases in the atmosphere. I'm even more convinced that, even if it is close to 50/50 whether you think we are or are not going through such a change, the implications of global warming are so enormous that we should have a "no regrets" policy to take some steps to try to slow down or reverse this process if possible. Florida has been called the "canary in the coal mine" because there is no part of the United States that would be more affected

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by the projected consequences of climate change. To begin with, a lot of Florida would be under water. The unique Everglades ecosystem would be threatened by salt water intrusion and fresh water supplies in Dade County would be affected as well.

Coming back to this strategic environmentalism, I think that one of the most significant steps the Federal government could take would be to create an environment in which the nuclear industry would at a minimum stabilize and, in my judgment, begin to increase its percentage of total energy generation in the country. I asked one of the assistant secretaries at DOE during a hearing some months ago this question: if in the year 2015, the United States were to have the same percentage of nuclear capacity in its generating mix that France has today, what proportion of our Kyoto commitments would that cause us to meet? His answer was at the low point we would meet 80 percent of our responsibilities under Kyoto, and at the high we would meet 120 percent of our responsibilities. That is what I call strategic environmentalism. If we can make that much of a contribution towards our global warming obligations, that would be a tremendously positive step.

Now obviously, I recognize that's not even physically doable. But it indicates how significant this one industry is in terms of a major environmental issue that this nation and the world are going to have to deal with.

Responses to Global Warming

NA: Current estimates are that our carbon emissions will be up 26 percent from 1990 levels by 2010, in contrast with the Kyoto commitment to reduce by 7 percent by 2010. With that in mind, how long do you feel it will be before global warming will be seriously addressed as a matter of U.S. law?

GRAHAM: I think global warming will be addressed seriously during the first term of the President who is elected in 2000. The period 2001-2005 will be the critical decision making time for the U.S. Administration and the Congress.

NA: What form of policy do you feel should be used?

GRAHAM: I think that one of the key parts of that policy should be to create an environment in which we stabilize the percentage of electrical generation which is derived from nuclear and provide the potential for decisions that would lead to an increase in that percentage.

Renewables are a part of this as well, although the contribution that renewables can make in the foreseeable future is fairly small. Nuclear is a serious sector of electrical generation in the U.S. Renewables, which I have supported -- including tax incentives for wind and biomass and research funding for solar, wind, geothermal and others -- are all a long way away from being a significant share of the U.S. electrical generation. When Secretary Richardson testified before the Energy & Natural Resources Committee, he had a numerical target for wind energy, and I believe it was 5 percent of the energy mix for the year 2005. And yet they did not have similar projected goals for nuclear.

Federal Role Re. Nuclear Power

NA: Can you elaborate on how you would like to create this more favorable environment for nuclear? Are there specific initiatives like financial incentives, or support for research on how to reduce the cost of nuclear power, or are you talking more about the political environment and perhaps attitudinal changes in Congress?

GRAHAM: I would say that the two primary things the Federal government can do are to deal with the nuclear waste issue and to ensure a stable and predictable regulatory environment. The importance of the latter is that prospective licensees should be able to make plans, that require many years to move from concept to realization, with some confidence of what the regulatory system will be throughout that extended period. Many nuclear plant licensees are now at a decision point of whether or not to apply for a license extension. The stability of the regulatory environment will weigh heavily in their decision process. As for new plant licensing, the NRC now has a one-step

construction-operation licensing process but this new process remains untested.

Getting back to the issue of nuclear waste, probably both substantively and symbolically, if the Federal government could deal with nuclear waste disposal, it would provide about as great a message of reassurance to the industry as anything the Federal government could do.

The marketplace-driven system is going to work against the characteristics of nuclear power.

There are also some other things beyond those big two. In terms of some of the more economic interests, there have been ideas -- but to my knowledge none of these has taken definitive form -- of recognizing the nuclear industry's contribution towards lowering greenhouse gas emissions. One idea that has been discussed, and from my perspective deserves serious consideration, is for the EPA to shift allocation of emission allowances from fossil fuel consumption to plant output. This strategy would provide an economic incentive for all emission-free sources including nuclear and renewables.

Finally, in the research area, before I voted on the Energy & Water Development Appropriation bill last week, I went up to Senator Pete Domenici and asked him what was in the bill relative to research for nuclear. He indicated to me that the principal accounts were all increased over FY99. So I'm encouraged that we are moving in the right direction of recognizing a Federal role in advancing the science, and through scientific advancement, gaining the public awareness and acceptability and the industry acceptability of nuclear.

I would add that within the Congress, the issue of research for nuclear has broad bipartisan support.

Impact of Deregulation on Nuclear Power

NA: Deregulation has led a lot of utilities to

consolidate and take various other steps to be competitive, while on the other hand a few other nuclear plants have shut down. From the Federal perspective how do you see deregulation affecting existing nuclear plants? Do you feel the dust will settle and nuclear will do well in the competitive market?

GRAHAM: First, I believe that electric utility restructuring should be state led as opposed to Federal. There are too many differences from state to state to have a "one size fits all" model. Most of the "hands-on" decisions such as when would deregulation occur should be made at the state level.

I think restructuring is a factor which today has negative implications for nuclear. As companies begin to spin off their generating capacity, it looks like what is going to happen is that in the end we'll have a set of independent power producers who will be generating the power, we'll have relatively few companies that will own the transmission lines, and then we'll have a plethora of companies which may be nontraditional, maybe cable TV companies delivering our electricity to the door. That kind of system, almost totally marketplace-driven, is going to work against the characteristics of nuclear power, which are high capital investment and a long planning window before you can move from concept to actual delivery of energy.

One of our goals should be to create an environment that will be conducive to some utility companies deciding that nuclear should be part of our mix.

To build a nuclear plant, particularly in comparison with what it costs to build a natural gas plant today, is enormously more expensive. There is also a great deal more financial risk involved and a much longer time between initiation and actual power production. Meanwhile the whole utility industry is undergoing restructuring and the old vertical

integration concepts are crumbling.

I think the Federal role in state-led utility deregulation is twofold. Primarily, it is one of levelling the playing field so that states can approach deregulation without one entity in the competitive mix being either advantaged or disadvantaged. Second, there are some national goals that need to be accomplished. I personally think one of those goals is to create an environment -- and I distinguish creating an environment from mandating -- that will be conducive to some utility companies deciding that nuclear should be part of our mix. I think as a point of national interest, I would not like to see the U.S. become excessively dependent on natural gas or on any one energy source. A mix of generation sources is in the nation's security interests.

Stranded Costs

NA: Do you support moving forward now with a national bill on deregulation?

GRAHAM: A national bill that has the characteristics that I described, which would be primarily for the purpose of levelling the playing field. That is, the bill should eliminate those past actions that have created non-competitive circumstances among the participants in electric generation. There also are, I think, some national standards that may be required, and nuclear probably is a particularly good example of this. For instance, issues like how to handle stranded costs might require some national resolution.

NA: One example of stranded nuclear costs was addressed in the CSIS recent report that you co-chaired, which recommended that decommissioning costs be passed through to ratepayers in case decommissioning trust funds are inadequate, and that Federal legislation should address this. Can you comment on that?

GRAHAM: That is again part of both the need for national standards and a levelling of the playing field. There are some utilities which in part because of their own activities, in some cases because of regulatory impositions, have ended up

with embedded costs in their nuclear facilities which have no economic value in a fully competitive deregulated environment. You have to have some way in which to pay for those costs. States like California have done so through a very complex system of trust funds. Another proposal has been to assure that there will be the opportunity to pass through those stranded costs to the ratepayers. That is not an unfair requirement. Before we change the rules, it is only fair to start a new game -- and by that I mean allowing the utilities to recover those stranded costs that were prudently incurred in the era of regulated monopolies.

Reliability of Supply

NA: As deregulation has progressed, we have already seen some decreased willingness by utilities to build more power plants, since they no longer have the assured return on investment from the ratepayers and instead have to use these new plants competitively. Some of their reserve margins have already declined as energy use grows and the supply doesn't necessarily grow commensurately. People have suggested that this summer's brownouts were a warning sign. In a deregulated world, what ensures the continuing reliability of electric power supplies? Is there a Federal role?

GRAHAM: I think that is a very serious issue. I think there could be a diminished motivation for the maintenance of a cushion to deal with circumstances of unusually high demand. We already have seen some possible harbingers of this in communities that have experienced brownouts in recent years. This is another example where we have considered establishing national uniformity. For instance, a standard might be established whereby a utility could only commit a certain percentage -- and I don't know what that appropriate percentage would be, perhaps ninety percent or ninety-two percent -- of its total capacity in contract obligations, so that it was reserving a percentage of its capacity for unusual situations. I think this might be necessary in order to keep a competitive playing field, and not have one utility that is able to sell 100 percent of its output and therefore have no reserves, while

another is required to sell only 90 percent of its output and has to keep 10 percent on the shelf, which would disqualify the competitive position between the two. So there could be national legislation to establish what those standards of margins would be.

NA: Applied equally to all utilities as well as the independent power producers.

GRAHAM: Right, to all those who are in the same class of competitors. This issue has been raised in some of the hearings to date.

But the other view on this is that with higher prices during peak periods of demand, the market will provide incentive to build new plants anyway. So I think we have to monitor this situation closely to see what new plants get built in this market-driven system, and take action at the Federal level if evidence

suggests that we cannot assure the reliability of supply. If at all possible I would like to try to avoid adding more Federal requirements since we are trying to deregulate this market.

Siting Future Plants

NA: You have indicated that you feel more nuclear plants should be built at some point in the future. What if a Florida utility said that they were ready to build a new plant? Could it be easily sited under Florida's power plant siting law that you mentioned earlier, and what would it take to satisfy the public?

GRAHAM: Well, our law in Florida on power plant siting is very advanced in that sites are located well in advance of being used. So there is somewhat of a land banking of approved sites for plants. Those sites that could be used for a nuclear plant meet additional standards, particularly things like feasibility of evacuation and other safety measures.

Yes, I think that if a Florida utility were to decide

that it wanted to proceed with a new nuclear plant, it could get a site permitted. We've had this law in Florida for at least two decades and it has been very successful and it has taken a lot of the emotion out of the issue of power plant siting. For one thing, if you are considering purchasing a home or establishing a business, you are well alerted to the fact that you are doing so in the general proximity of a parcel of land that might become the home of a power plant, including a nuclear power plant. If that is offensive to you then you can make a judgment to establish yourself someplace else. When I was Governor -- and the ultimate decision is made by a group of state-wide elected officials -- we would stay ten or twenty years ahead of what we thought the demand was in terms of siting these potential utility locations.

National Energy Policy

I would advocate that the Federal government have a goal to maintain a diversity of generation sources for the purposes of national security, economics and environmental protection.

NA: Senator, what do you feel is the appropriate government role regarding the planning of the nation's electric power supply and whether there should be a national energy policy or it

should be left up to the states and/or the private sector?

GRAHAM: My starting presumption is that utility policy ought to be at the state level. But there is a set of issues that require national attention. We've touched on most of them already: the disposal of nuclear waste; having a predictable NRC licensing process and overall regulatory regime; national investment in research; and national standards to level the playing field.

NA: What about questions like how much solar should we have versus how much coal or nuclear?

GRAHAM: I think that ought to be an economic decision, even with nuclear. I would not advocate the Federal government mandating a certain percentage of our total electrical power generated by nuclear or any other generation source.

However, I would advocate that the Federal government have a goal to maintain a diversity of generation sources for the purposes of national security, economics and environmental protection. With that in mind, I would favor the Federal government creating an environment such that if those who were going to put their capital at risk were to conclude that nuclear has now reached a point that it is financially feasible to pursue, that they would be willing to do so.

NA: How about the potential for nuclear fusion? U.S. research budgets have dropped substantially in recent years. Is fusion still a priority, or are we letting other countries now start to take the lead?

GRAHAM: I believe research in nuclear fusion is still a priority. However, budget caps have caused a reduction in research initiatives across the board, including fusion. Fusion research is and should be an international effort. It is important for the U.S. to be heavily involved in that effort. While I cannot speak for other countries, I know that Japan is strongly committed to fusion research. Japan is a country with no fossil fuel resources -- this may be an additional driving force for their commitment to research in future alternative energy sources such as fusion and methane hydrates.

Developing Countries

NA: What do you feel can or should be done to make nuclear power acceptable for developing countries? What do we have to do to become comfortable with poorer nations and even potentially problem states getting nuclear technology?

GRAHAM: My concern has been that as the demand for electrical energy accelerates in the developing countries of the world, that countries that are perhaps less equipped to ensure safe operation of these facilities could experience incidents that would erode world confidence in

nuclear. With that as my concern I think it is very important that the international community, through the International Atomic Energy Agency in Vienna, see that there are adequate standards for all phases of nuclear development and operations.

When I was Chairman of the subcommittee on nuclear power in the Environment & Public Works Committee, we held hearings on the question of whether there should be further international treaties on this. Almost like the Non-Proliferation Treaty but for commercial operations, such a treaty would say that if a country could not demonstrate that it was committed to international standards of safety and that it was committed to assure that the operation of the plant would conform to international standards, then it would not be eligible to receive

from any of the signatory countries the equipment or professional services necessary to build it. My prediction will be that in the next half century in the developing countries of Asia, Africa and Latin America, there will be a heightened

interest in nuclear and that we run the prospect of a lot of marginally operated nuclear plants, which could be not only an immediate threat to the communities in which they are located, but even a larger threat to the public acceptability of nuclear on a global basis.

NA: Do you feel new designs could be introduced that are more inherently safe and proliferation resistant, that could be acceptable in countries that do not have the infrastructure and technology?

GRAHAM: From a technical standpoint, if a country like France or the U.S. can build nuclear facilities that over a long period of time have demonstrated their safety, reliability and effectiveness, there is no reason to believe that those technologies cannot be exported to the developing world. However, what cannot be exported is a strong safety culture, a strong commitment to nonproliferation, a sufficient

regulatory infrastructure and a stable economy. These ingredients are just as important, if not more so, than the designs.

The problem is, will the economics result in plants being transferred successfully and operated safely, or will the desire to get a plant built and operated at significantly lower cost create downstream problems?

Nuclear Waste Legislation

NA: What prospects do you foresee overall on the nuclear waste bill? Is it going to pass and do you suspect it will have sufficient support to override the President's threatened veto?

GRAHAM: Yesterday, when Senator Majority Leader Lott was outlining our schedule for the rest of the 1999 session of Congress, he indicated that the nuclear waste bill was a priority and was expressing hope that there would be enough votes to make it veto-proof. Last year, we just fell a few votes short of that margin. And I think that with the changes that occurred in the Senate as a result of the 1998 elections, it's possible that there will be a veto-proof majority for a nuclear waste bill. Second, as you know the bill itself has changed. It's no longer focused on interim storage. I think that will make it easier for people to support it.

NA: The Administration still stands firm against the transfer of standard-setting authority for Yucca Mountain from EPA to NRC. You voted in favor of the committee bill that would move this authority to NRC. Do you agree with that provision and feel that NRC is better suited to set the standards?

GRAHAM: First, the issue of disposal of nuclear waste on a scale of zero to ten is a ten issue. In

comparison, the issue of whether the NRC or EPA should set the standards is one-and-a-half to two. There just is not that much difference between what the two agencies disagree over. I don't think the overall bill, of ten importance, should be held up over a one-and-a-half to two disagreement over jurisdiction. It would be my hope that those two agencies could come together on a scientific basis and see if they could not close the small gap that currently exists. If they cannot, I have a general presumption for having unified regulation as opposed to divided regulation and therefore, if forced to choose between the two, I would support, as I did, the NRC.

NA: Senator Domenici attached language to the nuclear waste bill that would set up an office at DOE to research possible transmutation of high-level waste. The House has passed a similar amendment. What do you see as the priorities for this office, and can you comment on the Administration's views on research in this area?

GRAHAM: The Administration has not specifically opposed Senator Domenici's language for establishing R&D to evaluate future alternatives for spent fuel management. I believe this provision is important to the future of nuclear energy. Also, the language requires all research activities to include minimization of proliferation as a key objective. Researching processes such as transmutation may result in an economical technology to reduce the toxicity of high-level wastes. This could result in a dramatic decrease in the required lifetime for a repository.

NA: Senator Graham, thank you so much for taking the time to share your views with us today.

GRAHAM: Surely. Thank you.