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"This Country's Energy Future"

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## THIS COUNTRY'S ENERGY FUTURE

It may be very early in the morning to face bad news about energy. My own view is that it is extremely late. There's not much time left for the bold leadership that is required by energy realities.

You and I have a customer in common -- the public. I believe the public is ready for tough, practical decisions on energy policy. Seven years after the OPEC embargo, Congress has still not taken its full responsibility to lead. Twenty months after Three Mile Island, the nuclear industry is not doing its share to ensure our energy future. The American people are tired of scape goats and simplicities. They are ready for real leadership -- and a vital part of that is to tell them the hard truths of our energy dilemma.

So I am bearing bad news this morning. I submit that when political leaders disregard the realities of energy, they risk the survival of us all. When leaders of your industry slough off the unresolved risks of nuclear power, you endanger your customers and the future of the nuclear industry.

In the nuclear industry and in the Congress, we must make basic changes for our security ... and for survival itself.

## Time Frames and Transition

Here in Washington, the short-term energy dangers seem much more glaring than the long-term ones. Energy is a "time-release" crisis. It compounds itself over time with long-term complications that get too little attention. A basic failure of the energy debate, in fact, is the failure to distinguish between short-term and long-term dangers.

The short term is intolerable. This year we will send \$90 billion to foreign nations for oil. This dependency drains our economic and military security. Prodded by the current danger to national security, Congress has developed an energy policy. It must be strengthened, but it is a beginning.

By contrast, the long-term dangers are still invisible. The choices we make today have extraordinary long-term implications. The possibilities include:

- catastrophic climate change from carbon dioxide
- empty reservoirs that once contained oil and gas needed for chemical feedstocks
- a nuclear war that started in the Persian Gulf and spread around the world.

The basic reality is that fossil fuels are a finite, diminishing resource. Our future security depends on a difficult transition to inexhaustible energy resources.

To avoid a disruptive transition, we have to stop using up fossil fuels so fast. Expert studies -- including the Energy Project at the Harvard Business School -- have found that conservation is the most cost-effective short-term option. There is a growing consensus that conservation is America's great, neglected energy resource.

Renewable energy resources also should be a top priority, as many of the recent studies have urged. Renewables are cost-effective now in many applications. But too little is being done to build the technology base and to speed commercialization. Most utilities are failing to lead on conservation and renewables. If we kept demand constant and accelerated renewables, they could be expected to provide 1/3 of our energy demand in the year 2000.

The electric sector must be the focus of many initiatives during this decade. We must reduce demand and manage loads to reduce peaks. We must add capacity with industrial cogeneration and renewables. We should evaluate electricity uses that can be performed better by direct thermal conversion -- such as space heating. By the late 1980s, we will be ready to decide how to meet increases in electric demand -- if they occur.

We cannot build more oil or gas fired power plants. We must try to cut our current use of base-load oil fired capacity. Then for all practical purposes, after we have maximized conservation and renewables, the choice is between coal and nuclear.

It is hard to compare the costs of coal and nuclear objectively because they are so different in character. Emissions from coal burning are associated with respiratory ailments. Nuclear energy poses the small risk of a catastrophic accident. Both coal and nuclear have occupational hazards as well as transport hazards. Mining also creates environmental problems.

In the long term, coal may create a so-called "greenhouse effect" -- catastrophic climate change from too much carbon dioxide in the atmosphere. Nuclear power creates radioactive waste that must be isolated from the biosphere for thousands of years.

We don't know enough about both to determine that one is clearly superior to the other. Someday new information may remove the scientific uncertainty. But right now, some reliance on both can help us make the transition to inexhaustible energy resources. We need to maintain a nuclear option.

#### A Realistic Approach to Nuclear Energy

I submit that the hardline, pronuclear approach is unrealistic and, ultimately, self-defeating. The hardliners are living in a dreamworld of denial. This is the way to kill nuclear power:

- Deny the real problems that put this industry in its current, dismal condition.
- Keep boasting about the industry's fantastic safety record.
- Call Three Mile Island evidence of nuclear safety -- say that nuclear energy is safe enough now.

- Keep up the pressure for the Clinch River Breeder Reactor, pushing for immediate permission for reprocessing of spent fuel.
- Keep putting down conservation and renewables as trendy nonentities.

Such a hardline attitude hurts the future of nuclear power. It will turn off the average American, and polarize the debate even more. Every license will be challenged in the judicial, legislative, and political arena. The breeder program will never get off the ground. Congress will continue to debate reprocessing and nuclear waste for the rest of this decade.

If you think the Republicans will bail out the nuclear industry with major new subsidies, think twice. Despite their devotion to nuclear power, they may be more devoted to the free market in this situation. Their recent political success elevates the voice of Wall Street, where there hasn't been confidence in nuclear lately.

It's high time for a new realism within the nuclear industry. Recognize the full range of problems and address them. Recognize public perceptions and the political controversy involved.

I believe the only realistic approach has 3 elements:

1. recognizing conservation and renewables as a major priority
2. protecting investment in nuclear plants on-line and under construction
3. establishing the basis for the possible mid-term deployment of nuclear power.

Let me elaborate on these aspects of nuclear realism.

## Conservation and Renewables

The importance of conservation and renewable resources is the strongest argument of antinuclear activists. There is widespread public support for conservation and renewables, just as there is widespread public mistrust of nuclear power. The public will oppose nuclear -- and should oppose it -- as long as the utilities are treating conservation and renewables with tokenism. If a utility replaces that tokenism with strong initiatives -- and can still show a need for new capacity -- it has a much stronger argument.

It just doesn't make sense to invest in new nuclear capacity while ignoring more economical sources. Capital is limited and the energy sector is consuming an increasing share of it. (In the 1960s, it consumed 24%; in 1977, the figure was 43%.) Supply efforts should be balanced with conservation efforts, which are less capital intensive. With inflation high and capital scarce, why pour all a utility's resources into a new nuclear project? A diversified program of small-scale technologies with shorter lead-times makes more sense.

Some utilities are seeing this. New England Electric System is projected to save over \$1 billion in capital costs by pursuing an aggressive program in conservation and load management. Southern California Edison has taken a second look at renewables, and now will pursue them aggressively. The utility's program will include wind, hydro, geothermal, solar, fuel cells, and cogeneration. I predict that this program will make it easier to finish its nuclear projects nearing completion.

Nuclear Plants On-line and Under Construction

Right now, the first nuclear priority is to protect existing investments -- nuclear plants on-line and under construction. Given the safety questions, it will be extremely difficult to bring the plants now under construction on-line.

In Maine's nuclear referendum, 41% voted to shut down an operating reactor with a relatively good record -- a reactor contributing significant economic benefits. In the counties right around the plant, a majority voted to shut it down. Obviously, people are losing confidence, and current investments are in jeopardy.

Your industry must prove that these plants are built and operated competently. For example, there are disincentives within the industry to identify safety problems because backfitting on all reactors might be required. This must change. The public wants to hear about safety improvements that the nuclear industry has made on its own -- not at the NRC's order.

As technology and our understanding of the safety and environmental issues improve, regulations will be updated. This is simply in the industry's long-term self-interest.

You need to improve instrumentation, operator training, and management. What businessman builds a billion-dollar plant and turns it over to operators who aren't properly trained?

You should work with the NRC to strengthen its focus on safety. A credible NRC is essential to restore public confidence. If the NRC oversees utilities inadequately, you will see more incidents like TMI or the recent sloppiness at Indian Point. Another Three Mile Island in this country and nuclear power will become a historical footnote.



The industry's Nuclear Safety Analysis Center and Institute of Nuclear Power Operations are good moves in the right direction. But more aggressive action is needed to restore public confidence.

The industry also should protect its investment by improving capacity factors. The record is not impressive. Incorporating the lessons of TMI and handling routine design and hardware problems may cut capacity further. This must be compensated for so that nuclear plants pay off better.

#### Possible Mid-term Deployment of Nuclear Power

The nuclear industry can protect current investments by improving safety and by increasing capacity factors. Then you must look realistically to the future. Don't expect any more orders for nuclear plants for most of this decade. Economic realities and lower electric demand provide time to address basic problems of public opposition, licensing and construction delays, and technology development. The following initiatives would help set the stage for a possible comeback for nuclear power in the mid-term.

We have to give the public the hard facts about America's energy crisis. There is no single panacea. It is our public responsibility to communicate energy realities -- to build a constituency for the hard choices ahead.

In particular, we must redress the information imbalance between nuclear and coal. "Nukes" -- with all that psychic baggage -- have been scrutinized for their dangers far more extensively than coal. I don't buy the popular notion that massive coal use is the all-American answer

to our energy crisis. To provide balance and understanding, the Senate Energy Committee held hearings on Acid Rain and CO<sub>2</sub>, which I chaired. We must accelerate R&D for both coal and nuclear so that their risks can be compared more rationally.

We have to work toward a consensus approach to nuclear waste. The process of exploring and choosing solutions must win public confidence. States should be included in the decision process. It is vital that the job be done right the first time. A quick fix that unravels (for example, Lyons, Kansas) damages the industry more than further delay. Perhaps the government should provide the R&D, but the full fuel cycle cost should be paid by the energy user. One of the major hold-ups in passing a nuclear waste bill is the question: Who pays? It is worth it to the industry to pay in order to resolve this issue.

We should pursue regulatory reform. The process must be open and thorough without unnecessary delay. Remote siting, site banking, standardization, and development of risk objectives should be explored. Issues should not be reopened at the operating licensing stage unless there are significant new facts or changes circumstances.

We must increase R&D in light water reactors to improve safety, operations, efficiency, and economics. (Our very reliance on LWRs is an accidental result of the nuclear submarine program.) The hiatus in plant orders can be used to reexamine the High Temperature Gas Reactors. These have advantages in safety and efficiency, and can be used to produce industrial process heat as well as electricity.

We ought to scrap the Clinch River Breeder Reactor Project.

Let's focus on advanced converters, breeders not based on a plutonium economy, and reprocessing technologies that are more proliferation-resistant (for example, the Civex process). The industry should avoid a losing battle on the issue of proliferation, and develop (but not deploy) proliferation-resistant breeders. They are a standby in case fusion is not practicable or is not ready on time.

The industry should be more involved in fusion at this early stage. This would hasten its commercial practicability and social acceptability. The Magnetic Fusion Energy Engineering Act, which I coauthored with Congressman Mike McCormack, encourages this.

#### Conclusion

In sum, these proposals are a realistic chance to break the nuclear stalemate. As long as the debate is polarized, nuclear power is not viable. If you pursue the unrealistic option and start a plant today, it may take 15 years. Take the realistic approach, and you might start the plant in 8 years and see it on-line 7 years later.

If this approach is successful, new orders may be coming in by the end of the decade -- depending on the need for electric capacity. You would operate in an atmosphere of public acceptance and renewed financial support. A new regulatory framework would allow plants to be brought on-line safely in much less time.

I urge you to recognize the urgency of conservation and renewables, to protect the existing nuclear investment, and then to maintain the viability of a mid-term nuclear option. This centrist position can get opposite poles pulling together. No other approach can get your industry moving again in the national interest,

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