

T E S T I M O N Y

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The U.S. Energy Crisis

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CT-177

April 2001

The RAND testimony series contains the statements of RAND staff members as prepared for delivery.

STATEMENT OF DR. ROBERT L. HIRSCH
Senate Environment and Public Works Committee
Subcommittee on Clean Air, Wetlands, Private Property and Nuclear Safety
April 5, 2001

Mr. Chairman and Distinguished Members:

I am Dr. Robert Hirsch, a Member of the Board of the Annapolis Center for Science Based Public Policy, a non-partisan, not-for-profit study group. I am also Chairman of the Board on Energy and Environmental Systems at the National Academies and a Senior Energy Analyst at RAND. My experience is in energy technology management and analysis in both government and industry in many areas of energy technology. The views expressed here are my own and do not necessarily represent positions of my three affiliations.

My messages to you today are as follows:

1. We are experiencing a new kind of U.S. energy crisis that has only begun, and we need to take decisive action.
2. There is no silver bullet to solve our problems.
3. The fundamental challenge that we face is balance, balance, and balance.

The U.S. Energy Crisis

Why do I call this a new kind of energy crisis? It's because the problems are more complicated than an oil embargo or a Gulf war. Our challenges involve many different aspects of our very complex U.S. energy infrastructure. Furthermore, I believe that our problems will take upwards of a decade or more to fix. Why so long? Because the problems are large in number, scale, and cost, and because we are simultaneously working to reduce some of the remaining environmental, health and safety risks associated with our energy system.

By now you've probably heard enough about the electricity problems in California, the natural gas price spikes throughout the country, the heating oil problems in the Northeast, and the gasoline problems in the Midwest. These problems were predictable, and, indeed, there were some unheeded warnings along the way. Part of the reason that we are in such a pickle is that there was no one in the federal government responsible for the wellbeing of the U.S. energy system – no one with authority, responsibility and respect to warn us when potentially significant problems began to rear their ugly heads. The Department of Energy is responsible for nuclear weapons, environmental cleanup and, almost incidentally, energy. FERC is responsible for regulating various elements of interstate energy flows. The EPA is responsible for environmental care, and the states are responsible for energy matters within their borders.

The energy goose has been laying golden eggs for so long that energy is off the radar screen of most people, until we have the occasional trauma. Right now, we are seeing a number of traumas simultaneously, and there is reason to believe that there are more to come.

For instance, in addition to the problems I just mentioned, our oil refineries are running at near 100% capacity, and we have slowly been increasing our imports of refined products – adding another dependence on foreign sources. No new refineries have been built in the U.S. since the

1970s, and a number have been shut down. Furthermore, we are in the process of phasing out an important gasoline additive, MTBE, an action that will further reduce refinery production rates at a time when demand is continuing to increase. In addition, the EPA has mandated much lower levels of sulfur in gasoline and diesel fuels, necessitating significant new investments in refineries in both the U.S. and offshore to supply the U.S. with our increasing needs.

Refining is historically a low return-on-investment business, so many companies are naturally reluctant to invest the vast sums of money needed for mandated changes. Am I suggesting that we reduce our environmental goals? Most certainly not. In my opinion, we must reduce sulfur levels in our fuels in order to further reduce air pollution. I just wish that we could accomplish our laudable goals with less acrimony.

How about siting and building the new electric transmission lines needed to deliver higher levels of electric power? That's a not-so-obvious problem in California and elsewhere. As you may know, siting new transmission lines has encountered interminable delays in many parts of the country and threatens to choke off higher power demands in a number of locations.

What about natural gas pipelines and petroleum product pipelines? Both are problems in many areas. Permits for new pipelines are tough to come by, and land for right-of-ways is increasingly expensive. At a meeting in New Orleans two weeks ago, a major oil company representative indicated that his company is using drag reducing agents in some of their pipelines because their pipelines are operating at full capacity. With petroleum product demands increasing, that indicates trouble ahead! And the list of energy problems goes on.

No Silver Bullets

If you want more electric power, you must build more power plants. Natural gas is clean and was very cheap until recently. Over 90% of planned new generation in the U.S. will be natural gas fired. In one sense, that's good because of the environmental attractiveness of natural gas generators with exhaust gas cleanup. In another sense, it's troubling because that mushrooming dependence on natural gas will make the country ever more vulnerable to future natural gas disruptions and price spikes. Analysts can run complex models that can demonstrate that over-dependence on a single fuel will increase national vulnerabilities. But in fact it's common sense. For instance, if all your retirement money was in the NASDAQ over the past year, you'd have problems. If all your money was in bonds in the early 1990s, you would have missed some golden opportunities.

The answer isn't all gas or all coal or all nuclear or all renewables. Each has its strengths and weaknesses. For instance, many people don't realize that for large power loads, the popular renewables are simply fuel savers for other power plants, and so their ultimate contribution to U.S. energy needs will be limited, even after their costs are brought down further.

Energy efficiency is important and must be part of the equation. However, making a major difference in energy usage on a national scale would require much higher energy prices or heavy federal government intervention and a decade or more of large investments.

Be wary of anyone who tries to sell you a silver bullet in energy. There are none. A diversity of approaches is essential.

Balance, Balance, Balance

Where does all of this lead? To me, we need a better-balanced approach. We need a diversity of energy sources and energy efficiency, if we are to minimize our costs and vulnerabilities. However, that would likely require federal intervention, which would not be universally welcomed.

And let's not forget energy research and development. Our federal investments at DOE and its predecessor agencies have yielded very important technologies, some of which are in use today and others that are on the shelf, ready when we need them.

Also, it may be that we will need to be temporarily flexible on some of our near-term environmental goals to help get us back on an even keel in energy. They're doing that in California now. However, I, for one, do not endorse turning permanently the clock back on pollution reduction.

Finally, let's not be afraid to have open honest dialogue on our options. Every one of them has its advantages and disadvantages. Let's discuss our options objectively and strive to minimize the extremism and misinformation that so often characterizes such discussions. And let's put someone in charge of overseeing our nation's energy system, please. If it's to be the Secretary of Energy, let's make that clear by law and then provide the authority and budgets needed for the task.

Post Script: When federal agencies or the Congress need expert, non-partisan, non-biased analysis, the three institutions with which I am involved have often been of help. The National Academies draw on the nation's most experienced and capable experts and provide the nation's highest level, most respected, in-depth studies of the full range of technical and technology-related matters. The Annapolis Center for Science Based Public Policy also draws on national experts and has provided relatively quick, brief, lay-level perspectives on narrower topics. RAND has in-house expertise across the spectrum of technical, environmental, economic and behavioral disciplines, and has provided analysis on small to very large issues, often relatively rapidly.