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THE HONORABLE FRANK G. ZARB, ADMINISTRATOR
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Historically, America has been blessed with an abundance of energy. Over the years, in fact, America's cheap and readily available energy supplies offset the cheap labor advantages of other nations competing in the world market. Our emergence since the turn of the century as the world's richest and most powerful nation reflected that fact.

Today that situation has changed. We still have abundant energy resources, but the domestic sources we rely on most have begun to dwindle while the use of other, more plentiful sources is constrained.

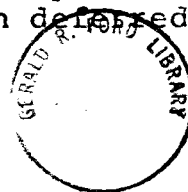
Our finite reserves of oil and natural gas, which account for three-quarters of U.S. energy consumption, have begun to play out.

Domestic oil production is roughly a million barrels a day lower now than it was at the start of the 1973-74 Arab embargo.

Natural gas production has dropped eleven percent in the past two years -- a trend that is expected to continue. And reserves, excluding Alaskan gas which cannot yet be brought to the lower 48 states, are at their lowest level since the mid-1950's.

Coal production is up about five percent this year. But the level of production -- around 640 million tons -- is still roughly at 1930 levels.

In addition, as many of you know, nuclear power and the electric utility industry in general has suffered severe problems, especially in financing new plants. In fact, conditions have been so severe that roughly 70 percent of all new nuclear plants scheduled to come on line between now and 1985 have been deferred



or cancelled and roughly one-third of all other power plants scheduled for construction during this same period have met similar fates.

Electricity demand that has gone from historic annual growth rates of 7 percent to essentially no growth over the past two years are primarily responsible for these postponements. Electricity demand is again growing, though at reduced rates -- residential and commercial demand have recovered to three-quarters of their normal growth, while industrial demand remains depressed. And for the next few years this trend is not likely to cause any problems.

But to the extent that deferrals and cancellations persist beyond the next year or two -- considering the long lead-times necessary for plant completions -- we run a very significant risk of electricity shortages six to ten years from now.

Let's explore the energy demand picture a little further.

As I said, electricity growth has been relatively flat over the past two years. The same thing is true for overall energy demand.

Demand today is close to three million barrels a day below pre-embargo forecasts and fully one million barrels a day lower, even discounting adjustments for warm weather and economic slow-down.

Much of this decrease is due to cost-conscious consumer decisions to deal with higher energy prices. Combined with the EPCA programs to increase industrial and product efficiency in energy use, plus passage of proposed national building standards and weatherization programs for existing structures, these efforts can continue to hold our energy growth rate below historic levels. With successful conservation we can hold that rate to roughly 2 1/2 percent a year over the next decade.

That reduction amounts to an equivalent of 10 million barrels a day less petroleum than was forecast for 1985 consumption prior to the embargo. But it still totals almost fifty percent more energy than we use today.

That means that by 1985, the United States will be consuming the equivalent of about 45 million barrels of oil a day in total energy. To be self-sufficient, no more than 5 million barrels a day of that consumption can be imported, and the nation must have enough stored supply and a standby program of emergency measures to cope with another embargo.



In other words, besides emergency storage and standby programs, we must maintain our imports at roughly the same level they are today.

To meet a growth rate of 2 1/2 percent over the next ten years and still keep imports at roughly today's level, will require: an increase in oil production to around 14 million barrels a day; almost doubling coal production and use; reversing the predicted 40 percent decline in natural gas production, and producing at levels at least as high if not higher than today's; and increasing our nuclear power capacity from around 9 percent to more than 20 percent of total electricity production. We also need to go from zero to around a million barrels a day of energy from synthetic fuels or other sources.

If any one of the four key areas -- oil, gas, coal or nuclear power -- falls substantially behind these goals, the other areas will be under even greater pressure to fill the gap and it will be even harder to hold down imports.

Achieving the necessary production increase or simply holding the rate of production decline to minimal levels are major efforts for the energy industries involved.

Let's talk for a minute about what it will take to accomplish these goals vis a vis where we are in our national energy policy.

Last January the President proposed a comprehensive and balanced program with three key elements: actions to increase energy supply, actions to cut down the rate of use of energy demand; and stand-by or emergency measures which one could use in the event of an embargo, given whatever level of imports were left.

There were thirteen titles in his original program and he has made several additional energy proposals since then. With the signing of the Energy Policy and Conservation Act in December, four of his thirteen original titles were enacted and are now being implemented.

These include extension of FEA's authority to convert oil and gas fired power plants to coal; a program to phase out price and allocation controls on oil over the next 40 months; programs to achieve energy efficiency standards for autos and mandatory labelling requirements for autos and appliances; a large strategic petroleum reserve program which will allow us to stockpile 150 million barrels of oil in three years and somewhere between half a billion and one billion barrels of oil by 1980 or 85; and, finally, standby authority which would allow us to use emergency measures during another embargo both to work with other countries and cut down our own consumption to meet a short-term curtailment.



With these measures, we can cut our import vulnerability by about two and a half million barrels a day by 1978 -- or achieve roughly two-thirds of the savings the President asked for in the short-term.

I mention the short-term programs because we have to focus on that separately and apart from the long-term actions since most of the long-term programs do nothing to keep the situation from deteriorating in the next year or two. If we lease on the Outer Continental Shelf, for example, it's five to seven years from the day you lease till the day you see any oil -- if the oil is there.

In terms of our long-term goals, the President's program would result in a total reduction in import vulnerability of thirteen or fourteen million barrels a day. That's roughly equivalent to the level of imports FEA projected for 1985 if we took no action. And of that total, we have the legislative authority to obtain savings somewhere in the range of eight to ten million barrels a day with the programs enacted.

I think with respect to oil, we've come a long way. We have a basic pricing policy. We have authority for strategic reserves. We have a number of conservation measures including the auto efficiency standards and we have the stand-by authorities I've talked about.

But there are a number of key authorities we still need.

We have significant Naval Petroleum Reserves both in California and in Alaska. To date, those reserves by law cannot be produced for commercial use. Quite frankly, it's a situation which is antiquated. It would take ten years before you could, in fact, get the oil out of Alaska and bring it down to the lower forty-eight states to use in the event of a war. Our economy would be much more secure if that oil were flowing now into the domestic economy and reducing our overall vulnerability or import dependence. Legislation that will allow commercial production from some of these reserves has passed both Houses of Congress and has just been reported out by Senate-House conferees.

Perhaps the most important decision the Congress now faces in terms of a national energy policy is the question of natural gas deregulation.

The issue today is not over deregulating all natural gas. It's a question of whether new natural gas, that gas which we need to find, will sell at a regulated price -- which today is about a fourth of the oil equivalent price -- or whether it will be deregulated and sell at competitive market prices.



There are a couple of major issues that come up with respect to natural gas deregulation and I'd just like to take a minute to touch on FEA's perception of those issues and what the facts are.

As I indicated, we had an eleven percent drop in natural gas production in the last two years. It's our best estimate -- not industry estimates, but our own field by field analysis in twelve regions of the country -- that there are substantial quantities of natural gas which could be found and produced at prices substantially over the present regulated gas price.

Today we produce roughly 20 trillion cubic feet of gas annually, and we think that by 1985 domestic production with deregulation could be 22 or 23 trillion cubic feet, roughly constant or slightly higher than current levels.

In fact, it's our estimate that the difference between continued regulation and deregulation in new natural gas could be as much as five or six trillion cubic feet of gas in 1985.

That brings us to the question of cost. What does it cost to deregulate?

It's our estimate right now that the average residential homeowner who uses natural gas in an interstate market, pays about \$170 a year for natural gas.

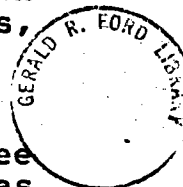
We also estimate that with deregulation of new natural gas, by 1985 that bill will be \$300 (in constant dollars).

Now, that sounds like a tremendous increase in natural gas prices and it is. But that comparison is somewhat misleading in the following sense.

If we add in with continued regulation the cost of replacing all the natural gas that won't be produced with oil at today's prices or propane or whatever, we find that the price at continued regulation in 1985 is \$280.

Or, in other words, the difference is about fifty cents a week. When one takes into account that continued regulation, while it holds gas prices down, also holds gas production down and will necessitate a switch to high priced substitute fuels, the difference in cost between regulation and deregulation is very close.

What's fifty cents a week worth? Well, it's worth three million barrels a day less imports. It's worth preventing gas curtailments rising by an estimated factor of three or four over the next decade. And in industries like textile manufacturing where there are no practical substitutes for natural gas, it's worth their future and that of their employees.



Last week, the President took two more actions to alleviate natural gas supply problems. To tap the estimated 24 trillion cubic feet of gas that's in Alaska, he proposed legislation to expedite its development and the transportation system that will be necessary to bring it to the lower 48 states. He also directed the Energy Resources Council to establish procedures that will allow us to balance our need for Liquefied Natural Gas (LNG) imports to supplement declining domestic production without becoming overly dependent on foreign sources.

Moving from shortage to abundance, we come to coal -- a subject you in Pennsylvania know well. We've all heard the figures on supply -- we have more coal than the Arabs have oil, hundreds of years worth of energy. In fact, if we could effectively tap these vast coal resources, our friends in the Middle East might well be traveling coach instead of riding first class.

The coal is certainly there. And it's cheap. But the key to how much coal we use is not really limited by what's in the ground, but by what we are allowed to use, particularly in electric power plants.

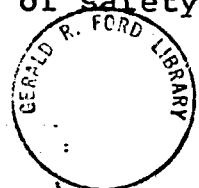
And our current environmental standards will not allow significant growth in coal use. In fact, something like two-thirds of all the coal used today in electric power plants could be impermissible, based on the present environmental standards.

That problem is a difficult one. When you are trying to weigh the benefits between our national energy need to burn a billion tons of coal by 1985, and our desire to protect the environment, honest people differ. But, at least in my perception these goals don't need to be mutually exclusive. We can produce and burn the coal and protect the environment at the same time, but to do so will require coming to terms on satisfactory compromises.

A large part of the compromise must be made on the Clean Air Act.

As that Act is now structured and implemented, we have a significant case of "overkill." The standards that the states have set to implement the law are too high and the speed with which we are asking that it be implemented is too fast.

There are two general classes of national ambient air quality standards. The Primary standards are designed to protect human health with an adequate margin of safety against all known adverse effects. The Secondary standards protect the public welfare and guard against adverse pollutant effects on plants and buildings -- also with an adequate margin of safety.



More important and relevant to our discussion is the fact that there are no known health or welfare benefits from air that is cleaner than the secondary standards.

To me it would make a good deal more sense to have a set of clean air requirements which don't compromise our goals for ambient air quality, but which do away with the type of overkill that makes the standards more stringent than they have to be. The Administration has proposed this type of compromise legislation which will also establish a time table for the next five to seven years that will achieve our clean air goals, but will not foreclose our coal burning options for energy production. Passage of this legislation is especially vital for energy self-sufficiency.

Another area of electricity generation which needs to to expand is our nuclear power capacity. And I am talking now about continued, careful expansion -- not a "damn the torpedoes, full speed ahead" approach with which nuclear critics view this source of energy.

At present, 57 commercial nuclear power plants with a capacity of almost 40,000 megawatts are on line, and a total of 179 power plants, with a capacity of about 196,000 megawatts, are planned or committed. The energy equivalent of 236,000 megawatts of nuclear powered electric generating capacity would be almost 7 million barrels of oil per day. So, nuclear power can make an important contribution to our energy supply picture.

The new energy budget requests submitted to Congress include hundreds of millions of dollars to improve nuclear safeguards, waste disposal, and operations and monitoring techniques for nuclear power expansion.

Other Administration proposals to assure our supply of nuclear fuel, to improve electricity demand forecasts, and streamline utility regulatory procedures at both the State and Federal levels so that unnecessary delays in licensing and siting are eliminated and the financial situation of the industry is improved can pave the way for responsible and realistic electric power growth to meet our energy requirements over the next decade.

Finally, I would like to make a few comments about the new technologies for energy production that are being developed -- solar power, coal gasification and liquefaction, nuclear fusion and the like.

In the first place, I don't think we can kid ourselves about these technologies making any kind of significant contribution to our energy needs over the next ten years.



As an example, I think the first nuclear powerplant was built here in Pennsylvania back in the mid-fifty's and it took us until 1970 for nuclear power to be producing as much energy as firewood accounted for. In other words, it takes a tremendous amount of time to translate a new technology into a large commercial operation.

That's the same kind of problem we are running into now with solar and fusion power and synthetic gas and oil from coal and shale. We are going to have to expend an enormous amount of federal and private dollars over the next decade to bring these technologies into commercial use. And even then, we don't estimate that their contributions will be much more than the equivalent of a million or so barrels of oil a day all together by 1985.

But if we don't spend that money now, in the years beyond 1985 when our oil and natural gas reserves are going to be played out for good, we won't have a prayer of replacing them.

So the \$11 billion dollar synthetic fuels commercialization program that was requested by the Energy Research and Development Administration is more like a down payment or an energy savings account for our children rather than the purchase of a black box that's going to solve our energy problems by 1985.

The same thing holds true for the major efforts that are underway to develop other new technologies.

Solar heating and cooling of homes and commercial buildings has considerable potential, but the wide-scale utilization of solar energy in central station electric powerplants is extremely slim by 1985 unless there is a dramatic breakthrough in solar collector technology.

As far as advanced nuclear power is concerned, fusion research is advancing, but it's still embryonic and the scientific feasibility of controlled fusion has not yet been demonstrated.

On the positive side, the Liquid Metal Fast Breeder Reactor is under intensive development and we hope to have a commercial size plant constructed by the 1990's. This technology is a logical follow-on to current commercially available reactors. If it can be commercialized on a large scale, it could increase the amount of energy obtainable from our present uranium resources by a factor of 70 -- or the potential for achieving 10 times more recoverable energy from uranium than from domestic coal deposits.

In the final analysis, when we look at the facts of our situation, this nation still faces an energy crisis. The severity may have been blunted temporarily by a warm winter or lowered gasoline prices, but our basic problems remain the same.



In Chinese, they use two characters to form the word "crisis" -- the character for "danger" and the character for "opportunity."

We have a "dangerous opportunity" in this nation to meet the challenges of our energy future. In my judgement, our ability to seize that opportunity and make it work to our benefit will depend on straight-forward and factual analysis of our options and a rational, common sense approach to their achievement.

We have the resources, the genius and the ability not only to eliminate the threat that energy imports pose to our security and well-being as a nation, but eventually to regain our place as a major energy producer.

What we do with that opportunity is up to all of us.

Thank you.

-FEA-

