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POLITICAL ISSUES IN ENERGY: THE UNITED STATES

The energy crisis is a true test for democratic societies. It is a complex issue loaded with immediate and long-range risks that the public disregards. For many reasons, the extreme dangers are discounted by market forces and by political forces. Meeting the crisis requires a social and political consensus -- and there's very little time to achieve it.

Among scientific experts, a consensus does exist. Despite the complexity of the issue, the basics are clear. Oil is a finite, diminishing resource. We face a hard transition to an energy future based on:

- * greater energy efficiency
- * solar energy and other renewable resources
- * nuclear fusion.

The soaring price of oil means hardship for less developed countries and for low-income citizens of industrialized nations. But higher prices reflect the fact that the earth has a finite supply of oil -- which we are using up too fast. Because of market imperfections, the price of energy alone will be far too weak to push our transition to the energy future fast enough. For example, current oil prices ignore extreme dangers -- both military and economic -- to Western nations.

Government must act boldly to speed and guide the transition. But political will is the weak link in the world's energy dilemma. Politically, it's more profitable to ignore the problem, or to deal in scapegoats and simple solutions. The current budget debate in Washington reflects this problem.

Today I will discuss what a realistic energy policy must include vs. what the Reagan Administration is offering. The news, of course, is bad. Renewable resources -- including photovoltaics -- face drastic budget cuts. Cuts in federal energy spending don't even reflect the President's rhetoric about cost-effectiveness. I will also talk about how other aspects of the Reagan budget will hurt the export of U.S. solar technologies. Overall, the

President's economic priorities are ill suited to the priority of solar technologies, other renewables, and energy efficiency.

Energy Reality vs. Rhetoric

First, the basic fact: oil is a finite, diminishing resource. Industrial societies that depend on it grew up with cheap, seemingly unlimited energy. We're still using up energy like there's no tomorrow. And in fact, our survival itself is risked by current consumption rates.

Dependence on foreign oil means that Western economies can be thrown into depression at any time. OPEC could begin a new embargo. The Soviet Union could use military power to interrupt supplies. This represents an extreme economic and strategic danger. The energy crisis is more than "the moral equivalent of war." It is war.

Destruction of the Persian Gulf oil exporting capacity would destroy the Western economies. Japan -- 72% dependent on the Persian Gulf in 1979 -- would fall first. Europe -- around 60% dependent -- would also grind to a halt. Germany, France and Italy would fall first; Great Britain last. Without our economic partners, and cut off from 32% of our oil imports, the United States would be left to wither. This is no horror show -- it is a real danger that requires us to mobilize in self-defense.

The world's capacity to endure even minor shortfalls is very limited. During the Iranian revolution, there was a shortfall of about 2 mmbbl/day out of a total free world consumption of 50 mmbbl/day. This shortage caused a doubling of world oil prices...from roughly \$13/bbl to roughly \$28/bbl.

The Iran-Iraq war has caused a comparable shortfall. Prices haven't risen much yet because we have dipped into commercial stocks (which were at record levels). We can expect prices to escalate later this year as stocks run down -- and especially if the Iran-Iraq conflict heats up after the rainy season.

American political leaders respond to this reality with rhetoric. Republicans like to talk about "unleashing" the oil companies. How do you produce more of a finite, diminishing resource? You don't. You extract it. To maximize this so-called "production" is a "Drain America First" policy. It simply hastens the day when our oil will be gone forever.

In spite of Washington's oil decontrol, and despite increased drilling, U.S. production will decline. There simply isn't enough oil in the ground to keep pumping it out at the current rate forever.

Current U.S. production of oil is 8.6 million barrels a day -- down from a peak of 9.6 million in 1970. By the year 2000, daily production will be between 4 and 7 million barrels, depending on whose numbers you believe.

The Democratic rhetoric also ignores energy reality. Many liberals like to scapegoat the oil companies -- which are convenient villains. The oil giants on the whole are powerful, insensitive, and distant. They are rich and getting richer. They are used to having their way in shaping government policies. They are ideal political punching bags.

Nevertheless, oil companies, for all their avarice and arrogance, are not the basic problem. Saints running the oil giants could not produce one more barrel of oil, one more gallon of gas.

Energy Consensus: Transition to Renewables

The partisan rhetoric ignores the scientific consensus that has emerged in recent years. The report of the Energy Project at the Harvard Business School -- titled Energy Future -- came out in June, 1979. That major contribution was joined in September, 1980 by Global 2000, issued by the State Department and the Council on Environmental Quality. These reports and many others emphasize the reality of finite, dwindling supplies of fossil fuels. The strong consensus of objective studies is that renewables and energy efficiency represent the energy future.

1. We must maintain economic growth without consuming more energy than we use now. The Energy Department now is holding back a study it commissioned by the Solar Energy Research Institute. The report showed that the nation could cut energy consumption by almost 25% by the year 2000 without sacrificing growth. This goes against Republican dogma, so the Energy Secretary is sitting on it.
2. We must maximize renewable resources. It is technically feasible to obtain 20 quads of energy (one-fourth of current demand) from renewables by the year 2000. We also should achieve the commercial demonstration of nuclear fusion by then.
3. After limiting demand with conservation, and maximizing renewables, we must meet the remainder of energy demand with various energy resources. The mix includes oil, gas, coal, synthetic fuels, and nuclear fission. All of these involve environmental dangers, but we simply have no choice. We can minimize the risks only by careful regulation of the mix.

The goal is transition, and the building blocks are the various sources of energy. A framework is needed. The 3 basic elements to that framework are: emergency response, pricing policy, and the role of government:

Emergency response. Even with the United States well into the transition period, Middle East oil supplies could be interrupted at any moment. To survive the emergency, we would need a strategic petroleum reserve, a standby allocation system, and emergency conservation plans at all levels of government. These needs are not met today.

Pricing policy. Our energy must be priced at its replacement cost. That means decontrol of oil prices and deregulation of natural gas prices. In most respects, we are better off because the price of energy is beginning to approximate its true value. Just suppose that the U.S. were able to crush OPEC and bring the price of gas back down to 80 cents or so. It would be a short term bonanza and a long term disaster. You would see far less energy conservation and exploration of remote oil fields. Development of synthetic fuels, photovoltaics, and energy-efficient cars would decelerate. The chance to make a safe transition from fossil fuels would be lost.

Role of government. Even with decontrol, oil price is insufficient to power the transition fast enough. The free market does certain things very efficiently -- for example, allocation of resources, production, and marketing. But the public sector must intervene with long term R & D, mid term demonstration and commercialization, short term public education and market stimulation. There are simply too many market imperfections.

For example, businesses aren't worrying about where the inexhaustible energy resources of 2020 are coming from. Their outlook is too short term. Long-range environmental risks are external to energy prices, and they seem to be an iffy part of a faraway future. (These include acid rain and the possible "greenhouse effect.") Limited access to capital also hurts the efficient operation of the energy marketplace.

The Reagan Program

The President's energy program disregards the clear consensus of experts. Rather than a balanced, strong program to speed the transition, the Reagan plan is tilted toward old favorites such as nuclear energy, and away from conservation and renewables. It considers decontrol a virtual cureall. It reflects the President's recent statement that "Conservation means being colder in winter and warmer in summer." President Reagan's rhetoric adds to the public confusion of energy efficiency with sacrifice.

A program based so heavily on decontrol -- and so unbalanced in its spending priorities -- is too weak to ensure a safe energy transition. The weaknesses are glaring:

-- The Carter budget for helping pay fuel bills of poor people was 9 times the amount for weatherization of homes. Is that any way to conserve? The Reagan budget shifts these efforts into block grant programs. Fuel assistance -- the stop-gap program -- will be able to continue at a substantial level. Weatherization -- the program oriented toward reducing energy bills now and far into the future -- will be virtually eliminated.

-- Lack of information and capital is a major barrier to cost-effective home energy improvements. Yet the Administration is killing the residential conservation service, which provides home energy audits. It is also killing the Solar and Conservation Bank. This is a businesslike tool to help finance home improvements. Such a new device is needed, in light of the fact that current tax credits are used more by wealthy Americans than by low-income and middle-income citizens.

-- The building design and construction industry as a whole illustrates market imperfections. The flow of information is slow because the industry is so decentralized. There are approximately 1.2 million businesses in the building sector, 100,000 builders, 60,000 architects, 2 million craftsmen, and thousands of engineers, appraisers, and inspectors. Innovations spread slowly; risks are avoided.

The Carter budget for conservation R & D and information programs for FY 82 was \$336 million. The Reagan figure is \$88 million -- a 74% slash! The President is dumping efficiency standards for buildings and appliances. His budget also eliminates funds for energy planning by states and communities, even though local decisions on transit and zoning patterns waste energy.

Contrary to the new Administration's benign neglect of energy conservation, we need a massive program of retrofitting existing homes and commercial buildings. Second, we must make cogeneration an urgent priority for industrial users. This would raise the efficiency of primary energy use from 32% to 80%. Cogeneration is the norm here in Europe, but the potential is largely untapped in the U.S.

Third, Congress must pass legislation setting automobile fuel efficiency standards after 1985. The fact is that 50-70 mpg autos are possible -- they should be the major part of the U.S. fleet by the late 1980's. Such tough standards go against the philosophical grain of current U.S. leaders, but they

simply reflect energy realities.

Think of the need for energy conservation in this context: Since 1968, we have consumed more oil than during all of human history before 1968.

Renewables fare no better than conservation under the Reagan Administration. Federal spending for solar energy and other renewables for FY 82 is cut by two-thirds. The Carter figure was \$684 million; the Reagan amount; \$241 million. It is possible to get 15 to 20 quads from renewables by the year 2000, but the Reagan budget numbers mean we won't come close.

Renewables are put out to sea with wind-bag rhetoric about the free market. The fact is that Americans have already paid out about \$200 billion in public funds to develop fossil fuels and nuclear energy. Washington has invested less than \$30 billion in renewables and conservation, which will continue to be kept at a unjustified disadvantage.

Renewable resources offer fundamental advantages. By definition, they are infinite. Americans using renewable resources keep energy dollars at home; they aren't dependent on a foreign supply source. For the most part, they are benign environmentally. They involve a variety of decentralized supplies. They require short lead times to put in place. Renewables also create more jobs than conventional sources do.

Their basic problem is the attitude of public officials and the public in general. Solar advocates are considered fringe-dwellers. Renewables are cubbyholed as the impractical vision of hippy-dippy folks in communes and a few liberal suburbanites. Like conservation, solar energy seems undramatic compared with a multi-billion solar synthetic fuels program. Can you imagine a movie about Clint Eastwood running a resource recovery plant?

The main drama about renewable resources right now is the dramatic way President Reagan has slashed their funding. Federal funds for ocean thermal energy disappeared completely. Each of the following was down by about two-thirds: active solar heating and cooling, passive solar, biomass, wind energy, alcohol fuels, and international solar programs. The abrupt ending of these international programs has many costs -- including the uncertain consequences of breaking an international commitment of whatever sort.

Photovoltaics funding was slashed from \$161.5 million to \$62.9 million -- a 61% "savings". That figure leaves no federal monies for commercialization. The Reagan Administration proposes to support only long term R & D on advanced

semiconductor materials. Cutting all commercialization may seriously damage efforts to reduce the cost of photovoltaics. The industry needs federal purchases similar to those that lowered prices in the semiconductor in the 1950s.

Photovoltaics hold great promise for less developed countries in the near future. LDC's now import more than \$50 billion worth of oil per year. Oil bills have slowed their annual growth rates from 7% to 3%. Debt service alone is now more than \$28 billion/year. These countries now can use photovoltaics for irrigation, medical refrigeration, grinding grain, educational TV, communications generally, etc. Oil is needed for transportation, but it is not an investment for the future; photovoltaics are. But these nations lack the capital to invest. It is vital that OPEC provide them much greater support.

Right now, the United States leads the world in nearly every category of photovoltaic R & D. U.S. companies can provide larger quantities of PV's at lower costs and higher performance than our competitors. These competitors have smaller, less costly R & D efforts poised to take advantage of U.S. breakthroughs with better marketing skills and distribution networks. By contrast, this is one of the weakest links of the American companies. European and Japanese firms often exhibit greater sensitivity to the needs of developing nations. They are more oriented toward local applications.

In 1979, the U.S. supplied 77% of the world's PV production. We won't be able to keep this overwhelming market share. Other nations are active partners in support of their exporting industries. Other nations help exporters through grants, loans, foreign aid tied to trade, and export trading companies.

The U.S. Congress must pass legislation to allow banks to participate in export trading companies. These can spread the risks and costs of exports among many firms and share expertise in developing markets. They are an essential ingredient in dealing with tougher international competition.

Export trading companies could enhance the economic posture of American PV companies. But other parts of the Reagan program may hurt. On February 18, the Administration proposed a 26% cut in development aid. The President also plans to cut the Export-Import Bank by \$200 million in the next budget year. In addition, the overall shape of the U.S. economy will affect growth by American PV companies. High interest rates and a lack of investment capital can stifle the growth of small, innovative companies. Ailing U.S. industries -- and others doing well -- have specific economic needs

that call for targeted government policies. This means careful budget priorities instead of consumer-oriented tax breaks across the board.

Conclusion

Finally, we come back to the tension between realistic policies and shortsighted partisanship. The experts see the energy future ... economies based on inexhaustible energy resources. The photovoltaics industry is part of that future, which government policy must accelerate. Washington must devise new policies to help U.S. technological leadership fulfill its potential. If we can shape strong government policies according to the existing scientific consensus, U.S. public officials will be serving American's national interest and the best interests of other nations as well.

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