

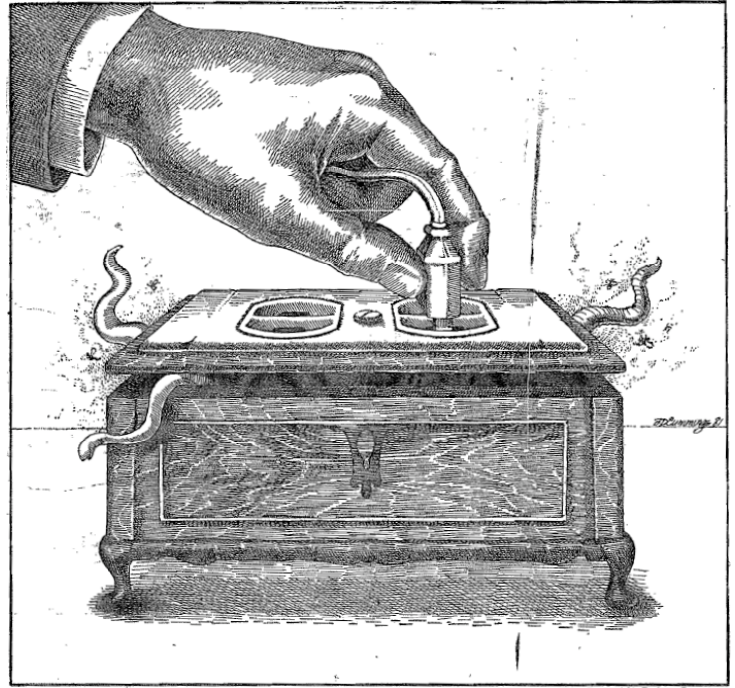
Peddling Nuclear Power: An Explosive US Policy

By AMORY B. LOVINS and L. HUNTER LOVINS

President Reagan last month announced a nuclear non-proliferation policy whose practical effects will be to spread nuclear bombs, subvert Nuclear Non-Proliferation Treaty, destabilize allied governments, raise energy prices and prolong dependence on foreign oil. These unintended results arise from misunderstanding the link between nuclear power and nuclear bombs, the economics of energy and the realities of nuclear politics abroad.

The Reagan non-proliferation policy depends first on the very assumption Iraq has just disproved: that the atom can be split into two roles as neatly and irrevocably as into two parts, offering nuclear power without spreading bombs. In fact, the atom is *atomic*, indivisible. *Every* form of *every* fissionable material in *every* kind of reactor can be made into powerful bombs, either directly or when treated by processes and equipment which nuclear power makes widely and innocently available - along with dual-purpose skills and organizations. Thus Iraq combined a French reactor (fueled with bomb material, some of which the French press has reported missing), Italian small-scale reprocessing equipment, Portuguese uranium and other contributions from many sources to amass, quite legal, a nuclear complex capable of making bombs by any of several routes, but publicly rationalized as "research" for an energy program.

Iraq's key facilities, advertised to be under "safeguards," were in fact legally exempt from international inspection; and even inspection of the reactor could not reliably detect its use to make bombs. This further proves the Pentagon's contention, in its private dissent to the Reagan policy (as revealed in the Wall Street Journal on July 17), that such safeguards cannot be relied upon. Thus Iraq has shown - like Israel, India, Pakistan, South Africa, Taiwan, Korea and others before it - that promoting nuclear power means promoting bombs,



Drawing by Barbara Cummings

and hence, that phasing out nuclear power is a necessary precondition for non-proliferation.

Is denuclearization, however, a sufficient condition? Can't countries bent on bombs still make them by other means? Yes, but with vastly greater difficulty. In a non-nuclear world, all the ingredients needed to make bombs by any method would no longer be ordinary items of commerce. They would therefore be harder to get, more conspicuous to try to get and politically far costlier to be caught trying to get, because for the first time they would be *unambiguously military* in intent. The civilian "cover" which enabled Iraq and Pakistan to get, and U.S. allies to supply, larval bombs would be stripped away, making the political cost to both parties generally prohibitive.

Nuclear advocates say denuclearization is utopian and foolish in a world short of oil. They fail to note, however, that nuclear power is uneconomic and is largely irrelevant to the oil problem. It offers the wrong kind of energy, too little, too late, and at far too high a cost. Less than a tenth of the world's

oil generates the form of energy – electricity – that nuclear power supplies. Even in this limited role, new nuclear power plants are, and have been since 1975, uncompetitive (despite subsidies halving their apparent cost) with new and relatively clean coal plants. (Existing but idled coal plants could more than replace all the oil-fired plants.) Here and abroad, renewable sources now available can also provide larger, cheaper and faster electrical supplies than can nuclear power.

But supporters of nuclear expansion face an even greater hurdle. Electricity constitutes only 8% of our energy needs. The other 92% of our energy is needed for heat and mobility. In these uses, any new power station, even a nuclear one, is so uneconomic that it would be cheaper to write off a newly built plant than to run it – its running costs alone would exceed the costs of improvements in energy productivity to provide the same services. Thus nuclear investments actually slow down oil replacement by diverting resources from other measures (such as making buildings and cars more efficient) which, in any country, can save vastly more oil, years earlier and at a tenth the cost.

Although the Reagan non-proliferation policy assumes that nuclear power must and will grow rapidly worldwide, the market says the opposite. Prospects for nuclear growth are actually collapsing – the greatest failure of any industrial enterprise in history. Official U.S. nuclear forecasts for the year 2000 have fallen eightfold since 1974, with at least 50 more reactors canceled than ordered. Strikingly, the collapse has been virtually identical throughout the world's market economies, including those with no regulatory impediments to building reactors (Canada) or to raising utility rates (West Germany).

Nuclear power is dying of an incurable attack of market forces. Only in the centrally planned economies – the Soviet Union and, until the recent elections, France – have nuclear-growth forecasts held steady. Imitating Soviet central planning, however, Reagan is seeking to boost subsidies (already more than \$40 billion) to nuclear power, and to gut domestic and international programs to harness far cheaper competitors – efficiency and renewables – which would increase, not endanger, national security. Yet despite all official efforts to favor reactors over these least-cost solutions, which would minimize consumers' costs through competition, nuclear power is and will remain a tiny part of total energy supply. In Japan, it now delivers half as much energy as renewable sources; in the United States,

about half as much as wood alone. In the European Economic Community, nuclear growth from 1974 to '78 yielded less than a tenth as much new energy as did growth in energy productivity. In the United States in 1979, government figures show that energy savings fueled 98% of our economic growth, outpacing all expansions of energy supply, including nuclear power, by more than 50 to 1.

The political prospects for the nuclear growth that the President seeks to foster and accommodate are even dimmer than are the economic prospects. In stable Sweden, two governments had fallen over the nuclear issue when, in 1980, 78% of referendum voters endorsed (and Parliament enacted) a freeze on reactor orders and a phasing-out of all nuclear power by the year 2010 in favor of efficiency and renewables. Nuclear power is among the most divisive issues today for France, Spain, Japan and many other U.S. allies, and currently imperils Chancellor Helmut Schmidt's tenure. So politically fragile is the German nuclear program that in 1979, a devastating review, by a private international panel of scientists, of Schmidt's proposal for a giant and allegedly vital reprocessing plant focused so much opposition on the scheme that the chancellor's own local party withdrew its support and he had to abandon the project. If an unofficial ad hoc review panel can have such an effect, the example of a formal American commitment to denuclearization – actually to a least-cost energy strategy – would do far more to influence foreign governments to examine safer and cheaper alternatives.

In short, nuclear expansion commands only minority support today in Europe and Japan – a minority that will dwindle further with new French policies – and can persist for time only by virtue of American political support. Reagan's most potent tool for limiting the spread of bomb materials and technology would be the example of his domestic energy policy. However, when he proclaims that the United States, with all its wealth, skills and fuels, must have nuclear power, then leaders whose nations lack those advantages can claim an even stronger need. When he says we need breeder reactors (which make and consume large amounts of bomb-usable plutonium), he encourages Iraq, Brazil, India and all other countries that say they need breeders too. (He also undercuts key congressional Republicans, the German finance minister, French President Francois Mitterrand and others seeking to impose economic rationality on breeder programs.) By endorsing the extraction of plutonium to fuel breeders, he waives

U.S. authority to veto it, and hence approves huge European reprocessing plants that are still only on paper. In the 1990s, if built, those plants – which the German and British governments admit are uneconomic as a fuel source – would annually separate enough plutonium for tens of thousands of bombs to circulate as an item of commerce within the same international community that has never been able to stop the heroin traffic.

Seeking to rescue U.S. reactor-makers from collapsing home markets, Reagan has also ordered a speedup of nuclear exports, most of which are heavily subsidized. Can other countries, similarly pressed by their failing nuclear industries, be expected to refrain? Ironically, such subsidies produce no net economic benefit to the exporting nations, but only transfer wealth from non-nuclear to nuclear domestic industries, while retarding or forestalling the use, especially in developing countries, of energy sources that are distributed freely, equitably and daily throughout the world, and that have no military uses.

The Reagan argument for exporting more nuclear equipment and materials is that if we do not, other and perhaps less scrupulous countries will get the “business” and the United States will thus lose its “leverage” – the same argument used in France to justify shipping bomb material to Iraq. But at the same time, the President has renounced that leverage by proclaiming the United States is a “reliable supplier” that will not withhold supplies from even as brazen a violator of agreements as India. The result of this viewpoint, as the recent U.S. shipment of fuel to India demonstrated, is that almost regardless of what a recipient does with our exports, we must continue to ship them to maintain a “leverage” we will never use. Thus the United States is promising to proliferate vigorously in the name of non-proliferation, sacrificing for an abstract leverage the concrete but unacknowledged leverage of our good example.

Finally, by endorsing breeders and reprocessing only for “reliable” U.S. allies with “advanced nuclear programs,” the President is reinforcing precisely the double standard that has led many embittered developing nations to threaten to quit the Nuclear Non-Proliferation Treaty (supposedly a centerpiece of the President’s policy).

Even the flimsy paper barriers to universal bomb-building are already near collapse because the United States, foremost among countries already having bombs, has ignored its treaty commitments to the energy-security needs of developing countries – President Reagan is slashing international programs for energy and development – and to nuclear disarmament. While it would have, Reagan says, “profound consequences for international order” for another nation to get even one bomb, he continues to multiply a U.S. arsenal of more than 30,000 bombs and to try to dominate the world through implicit threats of nuclear violence – habits which naturally inspire imitation by others. Such monumental hypocrisy may well scuttle the whole regime, however inadequate, of international “safeguards” and restraint. The nuclear arms race could then quickly spread from the two superpowers to dozens of countries, most of them hostile to the United States.

In short, if not reversed by an informed public and by Congress, the President’s non-proliferation policy is likely to loose upon the world vast armadas of commercial bomb materials, undercut the treaty, perpetuate bombs as the symbol and substance of ultimate world power, deepen our allies’ domestic divisions and commercial quarrels, prolong oil dependence and reduce the energy security of all nations. Worse, it will unavoidably and incontinently spread bombs, innocent disguises for bombs and ambiguous threats of bombs. These threats, as Israel and Iraq have shown, motivate rivals to get their own bombs, and even if no bombs are actually planned, turn one’s own nuclear plants into an attractive nuisance inviting preemptive attack. All this seems a high price to pay for Reagan’s unwillingness to subordinate his emotional fondness for nuclear power to a willingness to accept the verdict – however unpalatable – of a truly competitive marketplace. Even the demise of cherished delusions is less painful than a nuclear holocaust.

Amory B. Lovins, a physicist, and his wife, L. Hunter Lovins, a lawyer and political scientist, are the authors of “Energy/War: Breaking the Nuclear Link,” and are co-authors, with Patrick Heffernan, of “The Third World Nuclear War,” to be published next year.