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Will the Department of Energy Finally Stop Nuking America?

Prospects for national energy reform

by Peter Gray

January 26, 1990: The briefing room atmosphere was cheerful and relaxed. Several staff members seemed disappointed by the low press turnout. We waited for Department of Energy (DOE) second-in-command W. Henson Moore, the deputy secretary.

Moore started by announcing "the first policy initiative of its kind in a decade," then said, ". . . energy efficiency and renewables [are] the cleanest, cheapest, safest means of meeting our nation's needs in the 1990s and beyond."

". . . There's no need to wait for the 1991 budget; no need to wait for the National Energy Strategy to come out in the fall; we are going to start *today*. . . . It's time for the government to set an example. We've been talking about it for a decade; now is the time to *do* something about it. We will start this morning in this room."

The reporter next to me had dozed off. He had his press packet; why bother taking notes? Who would know that he had missed the off-script remarks? Here we were watching the Berlin Wall come down, and this guy was napping on the job.

Moore sketched the projected results of the conservation and renewable energy initiatives. Federal investment of $336 million over a decade will return cash savings of 95-to-1; energy consumption will drop by 14 percent of imported oil; 15 large power plants will not need to be built; and carbon and sulphur dioxide emissions will decrease.

Moore began the first program under the initiative: sending out efficiency teams of lighting specialists to "help get the federal house in order." "I want to introduce to you the first member of our efficiency teams—Charlie Jones, a career electrician for the Forrestal building."

A middle-aged, somewhat shy man in tan coveralls with an oval name patch sewn on the chest came in with an assistant, a ladder, and a set of hand tools. He opened a fluorescent ceiling fixture. As efficiency specialist Jones began wiring in a new solid state ballast (the voltage-boosting transformer that drives fluorescent tubes), Moore explained that each device would save taxpayers six dollars per year.

It may sound ridiculous, but there I sat, watching this dog-and-pony show, contemplating the possibility that DOE after a decade of neglect might begin to do something to benefit the country and improve the health of the planet, and tears were coming to my eyes.

After a year on the job, DOE Secretary James D. Watkins shows some promise of solving the perennial executive branch conundrum: Can we find agency leaders who have enough inside knowledge and power to get things done, yet can be trusted to act in the national interest? If Watkins fulfills this promise at Energy, it won't be a minute too soon—America has no more of a coherent energy policy today than it did when DOE was established; conservation has been mostly for volunteers and small entrepreneurs; a significant amount of money is still being put into nuclear power plants that aren't producing a kilowatt.

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while our air and water are threatened by nuclear waste; in the meantime, DOE has spent more and more of its time and money not on creative approaches to this mess but on . . . making nuclear bombs. So the idea that DOE may be turning towards such essentials as energy conservation is a radical shift—one that should be encouraged at every turn.

Bomb America first

One mid-January afternoon I waited in a reception area in DOE's Forrestal Building to interview Linda Stuntz, deputy undersecretary in charge of the Office of Policy, Planning, and Analysis. Watkins has called Stuntz his "right-hand person for strategy development," and during the past year she has organized a series of public "energy strategy hearings" around the country.

A prominent photo on the wall gives a candid statement of DOE's real business. It shows a tranquil desert scene—at the Nevada Test Site, where the U.S. explodes nuclear bombs underground. Most tests are conducted under the desert floor, in shafts up to 10 feet in diameter and 6,000 feet deep. Drilling, lowering the bomb and instruments into the hole, and filling it with concrete, epoxy, and gravel takes up to two years, at an average cost of at least $30 million.

About once each month, another test bomb is exploded, and within a few days a subsidence crater up to a thousand feet in diameter appears on the surface. Even during a test, the site looks as peaceful as the scene on the wall.

It's no wonder there are nuclear test site pictures in these offices. There probably ought to be a mushroom cloud on the department letterhead. After all, during Reagan's tenure, the share of DOE's budget devoted to designing, testing, and manufacturing nuclear weapons *increased from 32 to nearly 70 percent.*

The uninitiated may be excused for asking, "What is the *Energy* Department doing in the nuclear bomb business?"

DOE's first secretary was James R. Schlesinger, previously head of the CIA, and later secretary of defense. In all three positions, he was a member of the nuclear inner circle.

Charles Duncan was the second secretary, appointed by President Carter in 1979 and the last to try steering DOE toward its stated mission. His lack of military background kept him from influencing weapons policy, and he soon made enemies in the established energy industries. According to Tina Hobson, who served as a senior executive at DOE under the first four secretaries, "Duncan said, 'During my tenure at DOE, conservation will play the lead role.' He tried to make that happen, and he was dynamited by everybody."

The noble-sounding purposes of the nuclear weapons clique put mundane items such as the environment in the deep shade. Secrecy prevented outside oversight or regulation, while internal supervision of the contractors, who constituted 90 percent of DOE's workforce, was lax at best.

The department's budget diagram is full of euphemisms. "Strengthening National Defense" is set at $9.2 billion—with $8.5 billion for nuclear weapons. On the other side is $3.3 billion, called "Respecting the Environment." It's devoted to weapons plant cleanup.

Schlesinger's attitude fit this ethos to a T; according to Hobson, with him it was, "If you just leave me alone, I will take care of the problem. Don't ask me any questions, don't hold me accountable, don't do anything else, just believe in me."

Later on, that kind of faith came easily to Ronald Reagan, who had been a TV pitchman for General Electric, one of DOE's largest weapons contractors. His disdain for regulation, especially environmental regulation, was matched only by his absolute trust in business.

During his 1980 presidential campaign, Reagan singled out DOE as a prime example of government waste and promised to abolish the department. In the words of Deputy Undersecretary Stuntz: "That didn't exactly set the tone for the agency to feel that it had a mission and a future." Yet DOE's budget has stayed roughly constant in real terms since 1980. According to Hobson, this is why: "We knew that Reagan's campaign did not fully realize that the weapons system was a major part of DOE."

After the Reaganauts wised up, the 1980s saw the steady, quiet diversion of DOE even further from its stated purpose. Its weapons branch had long been the most powerful, not to mention the most immune to public scrutiny. Now falling oil prices, combined with Reagan's massive diversion of funds into the

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military, accelerated the weapons takeover of DOE. By 1988, more than twice as much money was going into weapons as into the rest of DOE programs combined.

Through the late 1980s, public outrage over the plants increased as the scale of abuse was gradually exposed. At the Fernald, Ohio weapons plant, more than half a million pounds of radioactive wastes had been dumped into the air and into Ohio's largest drinking water aquifer. During the fifties, radioactive iodine had been deliberately released from the Hanford plant. High-level nuclear waste still leaks out of storage tanks there. Similar stories come from Savannah River, where serious accidents and pollutant releases that began in 1957 were finally made public in 1988. At all of the facilities, health and safety practices were poor, and many records were altered or destroyed. With the recent indications that there is an appreciable cancer danger even from the exposure to radiation that comes merely from being an airline passenger, the long-range health risks of government's decades of blatant nuclear mismanagement cannot be shrugged off.

Tiger teams at Rocky Flats

Because of the scale of the problems Watkins faces and the independent thinking he brings to his job, he's been compared to Gorbachev. Like Gorbachev's, his vision may be limited by his having risen through a secret society—the very path that makes him so effective. Watkins was handpicked by Hyman Rickover for the elite corps of Navy nuclear engineers, so he is a longtime member of what amounts to an officially sanctioned secret cult. Finally, Watkins resembles Gorbachev in that his actions may have consequences far beyond his intentions.

DOE critics saw cause for hope in Watkins's performance as head of Reagan's AIDS Commission. His integrity and sense of justice were well known, but Watkins surprised nearly everyone with his candor, compassion, and creativity. And he abstained from moralizing, even though he is a staunch conservative and a devout Catholic.

One of Watkins's first projects at Energy was the use of "Tiger Teams" of nuclear facility experts, who invaded the weapons plants one by one, sometimes with little or no warning. After 40 years of classified operation, this was a much-needed innovation. Tiger Team reports may be expected to whitewash here and there, but each team is, when possible, composed of people with no direct connection to the plant under investigation. Although their reports on environmental, health, and safety practices are written in euphemistic bureaucratese, they confirm that violations were serious and systematic. The findings have torn holes in the already frayed secrecy curtains that had hidden Rocky Flats, Fernald, Savannah River, Hanford, and a dozen others from view. As a result, several plants, or major sections of plants, have shut down and will never restart.

Techno sop

For years DOE has argued that it is not subject to the Resource Conservation and Recovery Act, and it has been free from compliance with the Occupational Safety and Health Act. The "acceptable standards" it has set for itself for air and water pollution have been many times higher than levels that apply elsewhere. And the wording of the Emergency Planning and Community Right-to-Know Act covers all private and state manufacturing but exempts federal facilities. All these exceptions may fall soon. Watkins has repeatedly said that the environment, health, and safety will be top priorities at the weapons plants. But some warning signals come from one of Watkins's official alliances: The secretary stands behind Victor Stello, Bush's nominee for assistant secretary of defense programs, who has been under heavy fire from environmental groups for his sloppy, and possibly criminal, management of the Nuclear Regulatory Commission.

Watkins is not likely to abuse his power for personal gain, but he still deserves oversight, skepticism, and frequent reality checks. If he makes mistakes, they're most likely to stem from his excessive faith in advanced technology. As an admiral, he pushed for Aegis, an expensive, badly flawed, and probably unfixable naval weapons system. He was also an early backer of SDI.

Watkins's support of Aegis and SDI is not an irrelevant curiosity from his recent past. It shows an affinity for the expensive pipe dreams of contractors—a hazard Energy must navigate around. After all, AT&T, GE, Westinghouse, Martin Marietta, and Goodyear are contractors at DOE's weapons plants.

Watkins's version of perestroika is to change what he calls the "management culture" of the weapons plants. On January 24, 1990, the secretary dropped another bomb on them. He announced a proposal to amend DOE acquisition regulations to make weapons contractors accountable for losses of government property from theft or embezzlement and for all penalties for not complying with environmental laws. Imagine that! These new rules on liability are a bold expression of Watkins's ethical sense, and they are significant in what they reveal about the past.

Even if Watkins is adamantly committed to nuclear weapons development, he seems willing to clear

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away some of the underbrush of corruption, secrecy, and environmental abuses, then let the public decide on the merits whether to continue pouring tens of billions into bomb development. The answer should be a firm "No" (see "Bombs are not Bright . . . ," below).

Without much fanfare, in recent months Watkins, Moore, and Stuntz have held hearings around the country on the National Energy Strategy. Each hearing is an all-day affair, often on a locally pertinent topic.

At these affairs, Watkins usually gives a short opening remark, and he often attends the entire hearing. The secretary says he has heard repeatedly that what people want and believe in is conservation and renewable energy. He is impressed with what he has heard about innovative projects that communities and firms have undertaken, often with little or no support from the federal government: one favorite is a cow-manure-to-energy plant in El Centro, California. He closes his three-minute talk with thanks "for your willingness to assist us in this effort to devise a National Energy Strategy without insult to the environment."

Three days after I watched Deputy Secretary Moore kick off DOE's efficiency and conservation initiative, the administration's 1991 Energy budget request was released to a full auditorium of reporters.

But the budget document was a letdown for those who had heard Watkins and Moore say, "Any budget that doesn't make conservation and renewables a top priority won't be credible to Congress, and it won't be credible to the American people."

Despite such explicit statements, here was a request to cut the 1990 conservation budget by 5 percent. Renewables did better, with a 25 percent increase—about 4 percent of the journey back to pre-Reagan levels.

The department's budget pie-diagram is full of new euphemisms. "Strengthening National Defense" is set at $9.2 billion—with $8.5 billion for nuclear weapons—up 11 percent from 1990. On the other side of the pie is a $3.3 billion slice called "Respecting the Environment." "Apologizing to the Environment" would be more accurate—it's devoted to weapons plant cleanup and defense nuclear waste disposal—that's a pretty low payment on a bill expected to exceed $100 billion.

It's hard to reconcile the budget with the rhetoric. But the budget probably doesn't reflect Watkins's priorities; others in the administration—notably White House Chief of Staff John Sununu and OMB Director Richard Darman—had a hand in it. (When Watkins mentioned an "ideological difference" in the administration over conservation, efficiency, and renewables, he sounded like a man sending out a coded message.) Fortunately, at DOE—unlike at the other departments where the spending hasn't matched the rhethoric—the right words ("efficiency," "conservation," "alternatives") can go a long way after so many years of silence.

Lean, mean, and clean

Since 1973, efficiency gains in energy consumption have saved us about $1.5 trillion in energy bills. Efficiency and conservation meant that while the economy grew by 50 percent, the number of homes increased by 20 million, and 60 percent more vehicles went on the road, energy consumption grew by only 8 percent.

Nice numbers, but so what? So we're all wealthier and freer than we would have been. The U.S. is dumping five billion tons of carbon dioxide into the atmosphere each year, rather than seven billion. Due largely to efficiency gains made during the preceding decade, the past five years were a respite from energy anxiety. This would have been a good time to invest in even better technology; instead, it was a time of missed opportunity.

Here's a story that illustrates DOE's role: In 1978, Congress directed Energy to set home appliance efficiency standards. A few days before Reagan's 1981 inauguration, the agency issued standards on nine appliance types. The first set of standards are just now going into effect, and they are so weak that many appliances on the market already satisfy them.

Why did the government take longer to prod onto the market a few basic devices that will save consumers energy and money than it did to put a man on the moon? DOE's intransigence deserves most of the blame, but the format of the standards mandated by Congress hasn't helped much. Under this format, manufacturers feel that they can only lose. The regulations will set minimum efficiency levels, but manufacturers won't be rewarded for exceeding them. And if they don't meet the standards, enforcement and the levels of fines are unpredictable.

A better policy would be to tax (or subsidize) each appliance by the amount of energy it will waste (or save) during, say, three years, compared to the current average model. People would be free to buy or sell whatever they wanted, and we would see rapid progress toward the practical limits of efficiency.

Several energy-saving devices have come straight from DOE labs. The solid-state ballast so admired by

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Deputy Secretary Moore is quietly "mining coal" at rates far beyond the R&D money spent on it. Low-emissivity glass also came out of government labs, and it can reduce energy loss to a point where windows rival insulated walls. These are among many DOE research projects that will eventually save hundreds or even thousands of times the money spent on them.

How much more can we squeeze out of efficiency, and what will it cost? One hint comes from the many industrialized democracies that are up to twice as energy efficient in various economic sectors as we are. Economic advancement is strongly correlated with lower, not higher, energy intensity (consumption per GNP dollar).

At the January 26 press conference, I asked Moore whether DOE expects attacks from the coal, oil, and nuclear industries, and how he plans to respond. He didn't expect to be attacked: "Conservation doesn't conflict with other energy sources, but complements them. We hope they will see the wisdom in this approach." But efficiency doesn't complement other energy sources, it *replaces* them—especially when the survival of an industry depends on demand increases to justify massive funding. Efficiency was a main reason nuclear reactor orders ceased in 1978.

I asked about fluorescent ballasts. How much do they cost? How will you get building contractors to buy them? Moore expressed confidence in the market to put all things right. It's only a matter of setting a good example, he said; give people information, and they will naturally buy the most efficient and environmentally benign products. Perhaps, but don't count on it.

Gone fission

The political key to positive energy policy is a willingness to divide the savings among all participants. For example, utilities can be powerful promoters of rational energy production and use, but in their natural cost-plus rate-setting habitat, conservation and renewables are an anathema. The alternative approach could be made consistently profitable, and extended to conservation programs (see ". . . Bulbs are," below).

There is disagreement among atmospheric scientists over how far and how fast global warming will progress but little controversy over whether it will happen. We have begun a global experiment that we cannot expect to back out of.

While we wait for a clearer picture of the effects of global warming, common sense and prudence suggest that in dealing with it we take the cheapest steps immediately. We can devise incentives to decrease energy consumption and to shift toward low-carbon fuels. A tax on fuels in proportion to their carbon content will put the incentives where they belong. If increased gradually over 10 to 20 years, a carbon tax will stimulate innovation just as OPEC did, but without causing economic dislocation. Among the side benefits will be improved energy security and cuts in other pollutants. The U.S. does not need to fear sacrificing its economy with a unilateral carbon tax; ample proof of cooperation can be seen in agreements such as the Montreal Protocol on ozone-destroying chemicals, and most industrial nations already tax their fuels heavily.

An emissions tax deserves to be called a "user fee," not to disguise what it is but to emphasize that it is a charge for using the public atmosphere as a waste dump. Taxing carbon consumption will promote efficiency, the best bridge toward sustainable energy use.

Global warming may also be the last chance to save fission (uranium-based) power. Despite its long string of broken promises, nuclear may someday be part of the answer, and it may deserve further R&D funding. But taxpayers should insist on a package deal: 1) responsible and vigorous oversight every step of the way; 2) up-front accounting of the risks and costs of waste disposal and plant decommissioning; 3) reactor operators must buy their own liability insurance instead of shifting this burden to the public as they do now; and 4) DOE must guarantee that nuclear power *will not* be used as a source of weapon material.

Since 1973, efficiency has displaced seven times as much energy as new nuclear reactors have supplied, at costs five to ten times lower. In the near term, efficiency clearly wins as a fossil fuel replacer, because even a sudden surge in orders couldn't bring any new plants on line before the end of the decade, under the most optimistic assumptions. For the longer run, we have other options to consider.

Ninety percent of the world's wind power (enough for 350,000 households) is generated in California, not because the resource is so good, but because energy policy there was originally favorable. The average electricity harvest tops $2,000 per acre, five times the yield of prime midwestern corn land—and wind farms are also used for ranching.

Solar-thermal electric power is available *right now* to 400,000 people in Southern California at costs converging on the U.S. average residential rate.

One of the nuclear lobby's counterarguments to this trend is that solar would use many times the land area required by the equivalent in nuclear. But this is specious: Nuclear plants require large quantities of water for cooling and tend to be located on valuable riverbank or coastal land, whereas solar plants can use desert land and can also take advantage of millions of rooftops.

One more visit to DOE's desert photo: Using currently operating solar technology, DOE's Nevada Test Site could replace 70 typical nuclear power plants.

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Power lines

DOE's progress could eventually lead to something resembling "rational energy policy." What would such policy look like, and why do we want it?

Rational policy must be capable of estimating the full range of foreseeable costs and benefits from every known energy source. Linda Stuntz points out that no source of energy is entirely without negative side effects. She cites the example of wind turbines, which she says are killing several dozen eagles per year in California. Actually, it's mostly hawks, but fair is fair; those costs should be taken into account. Yet we should be wary of this approach being used as a ploy to say, "All fuels cause some environmental damage, and we can't precisely measure any of it, so let's assume those effects are equal, and ignore all of them." After all, we can make distinctions: Switching to nuclear power would cause immense quantities of plutonium to circulate throughout the country; we should acknowledge the health and weapons proliferation implications.

The words "Energy Policy" arouse fears—especially among those who make their livings from fossil and nuclear fuels—that established energy producers will be robbed in order to subsidize alternative sources unfairly. This attitude is epitomized in a statement that justified an 85 percent reduction in government funding for renewables:

> "Conservation and renewable energy sources are an important component of this administration's national energy policy. We support efforts *by the private sector* to develop alternative energy sources that are economically viable in the nation's competitive marketplace." (Emphasis added.)
>
> —Ronald Reagan, April 16, 1985

The problem is that the nation's energy market is far from competitive. Department of Energy R&D funding for renewables in 1990 is 8 percent of the total for nuclear and fossil. Altogether, including loan guarantees, tax breaks, and other subsidies, nuclear and fossil receive $40-50 billion per year from taxpayers. Meanwhile, estimates of environmental damage from fossil fuels are in the $100-billion-per-year range; not adding these costs to energy prices is an unjustifiable subsidy. A rational energy policy would level the playing field by making prices reflect environmental costs.

On the other hand, there are huge potential markets for wind and solar energy, and they could provide a way for the U.S. to reduce its deficits and enjoy the benefits of being an energy exporter. Even though Japan and Germany have less than ideal conditions for collecting solar energy at home, they have been funding photovoltaic research at twice the American rate. They tend to know a profitable opportunity when they see one.

But few of these great things are likely to be done through DOE as long as the department is dominated by business-as-usual weapons production. Contractors probably won't get out of bomb building and into sustainable energy as long as they eat at the lavish trough provided through protection from scrutiny. Here's where Watkins's amalgam of inside knowledge and high ethical standards could change the basic rules.

Watkins has made several moves that, intentionally or not, are likely to start winding down DOE's weapons complex. If contractors are liable for damages they cause while working with some of the most hazardous substances known and are subject to the political risk of an end to the Cold War, many may decide to take their interest elsewhere. This could eventually put the Energy department back in the energy business.