Road Map to a Rip-off

The Bush-Cheney nuclear revival puts contempt for consumers on glowing display

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The Bush-Cheney plan to prop up nuclear power puts contempt for consumers on glowing display

Introduction

New nuclear power plants are not economical, which means they can be built only if nuclear corporations are allowed special dispensation from government to soak consumers and taxpayers. That's exactly what the Bush administration's nuclear energy policies would do.

The administration's Nuclear 2010 program, an effort to subsidize the development of new nuclear power plants by the end of the decade, is the atomic component of the Bush-Cheney energy agenda unveiled last year. That agenda was developed after Vice President Dick Cheney held numerous meetings with energy industry tycoons, including many who were significant contributors to the Bush-Cheney campaign. That cronyism, coupled with the recent revelations of widespread corporate corruption and the evaporation of corporate credibility, has eliminated whatever trust citizens may have had in the administration's ability to promote energy policies in the public's interest. But while the administration's energy agenda lacks credibility, the nuclear power industry has seized on the administration's pro-nuclear position—and the 2010 proposal—to foster the notion that nuclear power is about to enjoy a revival.

Rather than protecting consumers by fighting the administration's misguided push to prop up nuclear power, Congress has embraced several key components of the Bush nuclear agenda. House and Senate appropriations committees have approved nearly $40 million in direct subsidies for the nuclear 2010 proposal in fiscal year 2003. Both houses approved the administration's recommendation to ship nuclear waste to Yucca Mountain. And the massive energy legislation currently being hammered out in a House-Senate conference committee grants the industry $2.6 billion in tax breaks and public subsidies for nuclear power research, development and deployment. Energy bill conferees have also approved reauthorization of the Price-Anderson Act, the taxpayer-backed insurance scheme that caps the nuclear industry's liability at unrealistically low amounts in case of

an accident at a nuclear power plant, thereby protecting the industry but exposing consumers and taxpayers to huge financial risk.

Yet even the administration's internal documents, prepared by a panel chaired by nuclear industry executives, warn that new nuclear power plants are not economical and can only compete if consumers are locked into high prices for a long time. The administration's very own analysis of the economics of nuclear power, as detailed in the administration's Nuclear 2010 blueprint, does not justify Congressional eagerness, or acquiescence, to the Bush-Cheney nuclear energy agenda.

It's not too late. Congress still has the opportunity to protect consumers and taxpayers from the economic folly of building new nuclear power plants. U.S. Senators and Representatives should stem corporate welfare to the nuclear power industry by eliminating the billions in nuclear tax breaks and subsidies within the energy bill now being conferenced and pending appropriations packages. And Congress should not support an energy bill conference report that includes Price-Anderson reauthorization—if the nuclear power industry can't get insurance in the private sector like everybody else, then it shouldn't be building new plants. Members of Congress should be mindful that if they persist in embracing the administration's nuclear energy policies, not only will they be giving an unfair competitive advantage to an industry that can't stand on its own, but they'll be a party to a government-sanctioned and taxpayer subsidized assault on consumers.

Bush's atomic economics

The administration requested $38.5 million for the 2010 program in its fiscal 2003 Energy Department budget. Bush's funding request has cleared House and Senate committees with relative ease, although the full House and Senate have yet to vote on appropriations bills.

The Department of Energy announced in June that as part of the 2010 initiative, DOE will subsidize early site permitting for three of the nation's largest nuclear power corporations to begin the process of building new reactors at existing plant sites: Dominion Energy's North Anna plant in Virginia; Entergy's Grand Gulf plant in Mississippi, and Exelon's Clinton plant in Illinois.

The Senate adopted an amendment in its energy bill to authorize spending for the 2010 program and effectively enshrine the proposal in law. House and Senate versions of energy legislation are in conference.

Meantime, nuclear industry officials are touting Congressional approval of Bush's recommendation to place nuclear waste at Yucca Mountain in Nevada as still another omen of a nuclear renaissance. Even before Congress had signed off on Bush's recommendation, Joe Colvin, the leader of the nuclear industry's Washington lobby, the Nuclear Energy Institute, proclaimed that the Yucca project "will resolve the main obstacle to widespread deployment of new nuclear facilities in the United States."[1]

Certainly, radioactive waste is a massive problem for the nation. And Yucca Mountain is a dangerous and unrealistic attempt at a solution, one that still must clear several legal and regulatory hurdles before it accepts an ounce of nuclear waste. But a very powerful, and very pro-nuclear, force argues that the waste problem is only a secondary impediment to new reactors. That powerful, pro-nuclear force is none other than the Bush administration.

The Department of Energy's own analysis of obstacles to new reactors lists waste as only a second-tier issue, resolution of which "is not a prerequisite to new plant construction." Several issues pose bigger problems, Bush's DOE says. And the biggest problem of all, the DOE acknowledges, is the fact that nuclear power is really, really expensive.

Or, as the DOE puts it, "economic viability for a nuclear plant is difficult to demonstrate."[2]

Like other Bush administration energy proposals, the Nuclear 2010 program is public policy by—and for—private industry. The blueprint for the administration's proposal was prepared for the Department of Energy by the "Near Term Deployment Group" (NTDG) co-chaired by executives from nuclear powerhouses Duke Energy and Southern Nuclear Operating Co.[3] Of the panel's 13 members, at least 10 are either directly employed by the nuclear industry, or have consulted for the industry. No consumer advocacy, public interest or environmental organizations were represented on the panel.

Yet in page after page, the NTDG's report, dated October 31, 2001, is remarkably candid about the numerous economic reasons why new nuclear power plants should not be built.

- Other forms of energy are far less expensive, and economic competitiveness "is the most significant obstacle to new nuclear plant deployment."
- Massive up-front capital requirements require "substantial financial investment and time before the investor realizes any return," which scares investors away. "The time required to license and build new nuclear generation is too long to respond to short-term changes in market conditions."
- Merely certifying new reactor designs will cost tens or even hundreds of millions of dollars, and "government support is essential."
- Those designs have never been licensed, so construction periods and the licensing process itself is mired in uncertainty, virtually assuring costly development and construction delays.
- Even if new plants somehow manage to meet projected cost estimates, the plants won't be able to produce electricity at a competitive price.
- Large up-front capital costs and investor preferences for shorter routes to profitability effectively neutralizes any advantages reaped from an economy of scale—the bigger the plant, the more pronounced the obstacles to economic viability.

Incredibly, after carefully counting all the ways in which building new nuclear plants makes no economic sense, the NTDG recommends building new nuclear plants. According to the panel, nuclear power's lack of economic viability can be overcome by giving nuclear power corporations a plethora of goodies in the form of taxpayer subsidies, a greased regulatory process, and locking consumers into needlessly expensive power bills for a long, long time.

The NTDG titled its report "A Roadmap to Deploy New Nuclear Power Plants in the United States by 2010." A more accurate title would have been "A Road Map to a Rip-off."

A long time to a tough market

The NTDG freely admits that nuclear power plants are more expensive than other forms of power. When the group started listing "issues that could influence the viability" of any new nuclear power plant, "economic competitiveness" topped the list.

"This is the most significant obstacle to new nuclear plant deployment," the group wrote.[4]

The NTDG estimates new plants could cost as much as a staggering $2,128 per kilowatt of electricity generated. Natural gas-fired plants, by comparison, are likely to top out -under the most expensive scenarios- at $682 per kilowatt.[5]

Even the NTDG's lowest estimate comes in at $1,000 per kilowatt of generating capacity—46 percent higher than even the most expensive estimate to build a gas-fired plant. Using a more realistic cost for gas-fired plant construction at about $500 per kilowatt—a cost for which, unlike nuclear power, there is a recent and ongoing track record in the real world—a nuclear plant project built under optimal circumstances would still cost twice as much as building a gas-fired plant.

It also takes much longer for nuclear power plants to come on line and start producing revenues, which means investors have to wait patiently for years before they see a return on their investment. The long lead-in time and higher capital costs means that lending institutions will insist on higher returns on investment, which is to say the cost of money for nuclear plant developers will be expensive.

If and when the switch is finally thrown at a new nuclear plant, the electricity generated at the plant could and perhaps would be sold into a market that bears little resemblance to the market counted on by investors and plant developers. For instance, if natural gas is selling at $3 per million BTUs, a nuclear plant won't be able to sell at a competitive price unless the nuclear plant is built at $1,000 per kilowatt of electricity generated, according to the NTDG's sensitivity analysis.[6] Yet the NTDG acknowledges that such a low capital cost is entirely unrealistic. At a more likely, yet still optimistic, cost for new plant construction—between $1,400 and $1,600 per kilowatt—the new plant's power wouldn't be competitive unless natural gas was selling at $5 per MMBTU or more.

Spot prices for natural gas at the Henry Hub in Louisiana, a key market often used as a benchmark for upstream prices, have hovered in the $2 to $3 range for most of the last decade.[7] Gas prices are volatile and sudden price peaks are routine. Thanks to market manipulations by energy traders during the California energy fiasco, spot prices hit a staggering $10.53 in December 2000.

But as any banker, businessman or field service worker in an energy-producing state knows, periodic spikes in the price of natural gas boom are always, without exception, followed by a plunge. Recent history is no exception. The California debacle was accompanied by breathless alarmism about inadequate infrastructure and insufficient production, and dire predictions about looming gas shortages and even higher prices. It hasn't happened. For most of the past year, gas has been traded at the Henry Hub at between $2 and $3.50.[8]

The NTDG trots out gas price volatility as one of the reasons that new nuclear plants will be competitive. But for nuclear plant developers, or investors who want to support them, gas price volatility is a double-edged sword. Even if gas prices are hovering in the $5 per MMBTU range when a new plant comes on line—the price against which a new nuclear plant might have some hope of competing—there is no guarantee that the price will still stay that high for any significant length of time. On the contrary, the history of natural gas pricing suggests the $5 price may not be sustained for any more than a few weeks.

In a summation that should warn potential investors everywhere, the NTDG explains that nuclear plants "are at a disadvantage compared with gas-fired plants, due to the larger accumulation of time-related charges, due to potentially being late to market, and due to the risk of changing market conditions, on which the project profitability evaluation was originally made, before the project has reached commercial operation."[9]

Going bambam on pebbles

Finding the economics of really big nuclear plants particularly troublesome, the NTDG turns to something altogether different: Little nuclear plants. Specifically, the pebble bed modular reactors (PBMR).

Cover stories in national news magazines and some of the nation's largest newspapers sang the praises of the PBMR and its role as nothing less than the savior of nuclear energy's economic future. Touted as both safer and less expensive to build than traditional, massive water-cooled reactors, the comparatively smaller gas-cooled reactors get star billing in the administration's Nuclear 2010 plan. Of eight designs for new nuclear reactors identified as "near term candidates" in the 2010 report, "the PBMR is the only one for which there is currently a potential customer actively involved and investing in the plant's development. Although Exelon's continued involvement is not assured," the report somewhat presciently noted, "this is a significant factor in the PBMR potential for deployment in the U.S. by 2010."[10] Accordingly, when Abraham delivered his speech announcing the 2010 plan, the pebble bed was the only design he mentioned specifically, predicting that the PBMR would prove "compelling to the public, to utilities, and to investors."[11]

Congress, too, was enamored with the pebble bed. When the House reauthorized the Price-Anderson Act – legislation that limits the amount of insurance nuclear operators are required to carry and limits their liability in the case of a catastrophic accident - language was included specifying that a series of multiple, individual reactors would count as only one for purposes of calculating liability in case of an accident. The language was tailored specifically to accommodate the vision of several 110 megawatt PBMR's interconnected at a single site. The PBMR is, without doubt, the crown jewel of the nuclear industry's revivalist hopes.

Or it was, anyway.

Exelon, the nation's largest operator of nuclear power reactors, announced in April that it was pulling out of a consortium to build a pebble bed modular reactor in South Africa.

Exelon was the only U.S. utility trying to develop a PBMR, and the company's departure from the PBMR project "came as a shock" to the DOE.[12] The Nuclear Regulatory Commission spent millions gearing up to certify the PBMR design and ultimately license the reactors. Seeing the writing on the wall, the NRC has all but backed away from its PBMR review program.[13]

Exelon's abandonment of the project has left a colossal void in the prospect that the new reactors will ever be developed domestically—and perhaps internationally, for that matter. But Exelon's about-face on the much-feted design also strips the Nuclear 2010 program of the "only (new design) for which there is a customer."

Which brings us back to giant reactors with their long times to market and high capital costs. The NTDG analyzed economic competitiveness of several large-scale reactor designs, including the Westinghouse/British Nuclear Fuels Corporation AP-600 and AP-1000. The AP-600's design has already been certified, and Westinghouse/BNFL applied for design certification of the AP-1000 in June. Those reactors now appear to be the most likely candidates in the Nuclear 2010 initiative.

The NTDG reports that Westinghouse estimates an AP-1000 will cost $1,657 per kilowatt of electricity generating capacity—more than three times the going rate for gas-fired plants. For a 1,090 MW plant, that works out to roughly $1.8 billion.[14] That cost excludes time-related charges that the NTDG estimates could add between 25 and 33 percent to the cost of new plants.[15]

Will the market price of electricity cover the costs of such an expensive project? Even the NTDG is skeptical. Even if nuclear plants achieve market competitiveness several years after operation begins—a dubious assumption in any case—"It remains to be seen whether later in life economic benefits of nuclear project make up for their greater up-front costs and risk."[16]

Public money? You bet.
Public participation? You wish.

After five decades, the commercial nuclear power industry still can't seem to operate without government handouts. "Government support is essential," the NTDG explains, including "cost sharing of generic and one-time costs."[17]

While the administration's budget would throw $38.5 million in fiscal 2003 at the Nuclear 2010 program, that sum is a pittance compared to the massive government financial support that ultimately could flow to the nuclear power industry over the next decade if the program moves ahead.

It costs hundreds of millions of dollars to complete and certify the design for a new nuclear power plant. For instance, Westinghouse estimates the cost of certifying the AP 1000 design at $303 million—and proposes that government pay $155 million, more than half the cost. The NTDG suggests paring government's share of design costs back to a mere 41 percent, or $124 million.[18] The administration ultimately hopes to see more than one design move ahead, and each design would mean another $100 million or $200 million in government subsidies.

Still, as the NTDG notes, government—even one so eager to prop up the nuclear power industry—can't be expected to foot the whole bill for new plant development, and something more must be done to entice private investors to nuclear power plants.

That's where shiny new "streamlined" regulations come into play. At the industry's request, the NRC rewrote its regulations in the 1990s to combine nuclear plant construction and operating licenses (COL) into a single one-stop shopping affair. The NRC also acquiesced to industry to revise the Inspections, Tests, Analyses and Acceptance Criteria (ITAAC), by which the NRC assesses whether a plant is meeting construction licensing requirements.

The regulatory environment now effectively locks the public out of the environmental and safety review processes for new plants. Never very public-friendly to begin with, the new rules prohibit members of the public from appealing an NRC decision—a prohibition that was not extended to the industry. But that's not all—the combined process requires that the public must raise any doubts or questions about a new nuclear power plant during the single licensing process, and can't raise additional questions or issues after the plant is constructed but before it becomes operational. What if new questions or issues arise during the construction of the plant? What if there's a surprise (and with nuclear power, there's always a surprise)? All the NRC has to say is - Sorry, you had your chance to speak up during the licensing process.

The nuclear industry wants to keep the public out of the permitting and licensing process as much as possible, so the plants can be built as quickly as possible, without any pesky interference from people who might actually have to live next to the thing. But there's an even more important reason the industry was so keen for "streamlined" licensing procedures: If public scrutiny were to delay plant construction, or lead to

additional safety or environmental modifications at a plant, it would cost money. If public scrutiny is kept at a minimum, the risk of additional costs is similarly minimized.

The NTDG is very up-front about the inconvenience of people having a say in what types of industrial facilities employing extremely dangerous technologies are constructed on the edge of their communities. Licensing regulations were rewritten "in direct response to the inefficiencies, difficulties and financial risks experienced by the nuclear industry in licensing and constructing plants under the previous process."

In other words, the NRC, increasingly captive to industry, is more concerned about protecting nuclear power corporations from "financial risks" than protecting the public.

The final answer: Gouge consumers

Even after assuming hundreds of millions in taxpayer subsidies and a regulatory process that effectively locks out the public (and thus minimizes the prospect of construction delays), and rendering a passel of questionable economic assumptions designed to prove that nuclear power plants can compete, the NTDG notes that "a problem still exists regarding high generation cost requirements early in life that might exceed likely market prices."

"One potential solution to this problem," the NTDG shamelessly explains, "may include obtaining power purchase agreements *above market prices* during the early years of operation, this price *subsidy* to be returned later in life when adequate price-cost margins have accumulated." (italics added) Those power purchase agreements, the NTDG adds, "can be issued by a state or a regional agency, interested in diversifying its energy supply technology mix."

In other words, if government plays along, the nuclear power industry will be allowed to force consumers to buy power from the new nuclear plant, even if other, lower-cost options are available.

In effect, by embracing and adopting the recommendations in the NTDG report as the blueprint for the Nuclear 2010 plan, Bush and his Department of Energy are advocating heavy-handed government command and control of electricity markets to enrich nuclear power corporations, with consumers footing the bill. In the process, the

administration would give an unfair advantage to nuclear corporations and stack the deck against competing energy sources, including alternative and renewable sources.

The Nuclear 2010 blueprint prepared by the NTDG rationalizes the economics of nuclear power plants by asserting repeatedly that despite the frightening economics of nuclear plant construction, the plants will be competitive "later in life" or receive adequate market prices "over the plant's lifetime," etc.

There is nothing in the history of the commercial nuclear power industry to buttress that assertion. On the contrary, the economic track record of nuclear power plants is characterized chiefly by cost overruns, unexpectedly high operation and maintenance costs, expensive unscheduled shutdowns, lower-than-anticipated operating efficiency and an overall failure to perform competitively.

In fact, nuclear utilities spent the past several years going to great lengths to convince regulators in state after state that nuclear power plants could not compete with other energy sources in a restructured electricity market. Nuclear utilities fought hard to ensure that as states deregulated the electricity industry, consumers would get stuck with the lingering debt on nuclear plants, lest the corporations might have to shoulder the burden of their atomic money pits. Such "stranded costs" are estimated to have cost consumers $28 billion in California alone.[19]

And that explains why the industry and its political apologists would even consider building new nuclear power plants even though they don't make economic sense. They insist that taxpayers and consumers can always be relied on to bail the industry out. The industry was created by government. Through subsidies, tax breaks, a government-sanctioned exemption from insurance coverage and other supports, government has propped up nuclear power ever since. Government has always guaranteed nuclear corporations a return on their investment, no matter how misguided that investment. There is no reason to believe that government coddling is going to end any time soon, particularly not under this administration or, sadly, today's Congress.

In fact, for a bunch of people elbowing each other to get in front of a television camera and proclaim their commitment to cracking down on corporations run amok, Congress has been shameless in supporting the so-called nuclear renaissance. According to the Green Scissors report, *How Environmentally Harmful Energy Subsidies Siphon*

Billions from Taxpayers, nuclear industry subsidies in H.R.4, the energy bill currently being conferenced, add up to more than $2.6 billion – that's on top of an estimated $4 billion worth of existing handouts for nukes.

Consumers could get lucky. Even the nuclear utilities that are getting federal money to go through the early siting permit process don't have any firm plans to build new plants. The Bush administration's irrational exuberance for new nuclear power plants has yet to materialize in the investment community.

But the more subsidies, goodies, and crutches the administration bestows on a private industry in an effort to artificially give it the appearance of economic competitiveness, the more likely it will be that at some point, nuclear corporations will determine the time has come to give a new plant the green light.

Congress needs to tell Bush and Cheney to settle down. Instead of supporting the Bush-Cheney nuclear agenda without discussion—the congressional pattern thus far—Congress could protect consumers from getting saddled with the costs of hulking, inefficient and lethally dangerous nuclear power boondoggles.

Congress could reject the energy bill with its nuclear title that promotes an increased dependence on nuclear power, provides massive subsidies to the industry and reauthorizes the Price-Anderson Act to extend federal insurance protection to potential new reactors. The private insurance sector, having made its own economic analysis of nuclear power's risks, refuses to fully cover a nuclear power plant in case of an accident. Simply put, if Price-Anderson is not reauthorized, there will be no new nuclear power plants.

And particularly given the reappearance of federal deficits, Congress should turn off the spigot of public money and government handouts to the nuclear industry by rejecting the administration's funding request for the 2010 program.

That's what a consumer-friendly Congress would do.

Notes

[1] Statement to the Japan Atomic Industrial Forum Annual Conference, April 2002.
[2] "A Roadmap to Deploy New Nuclear Power Plants in the United States by 2010," Vol. 1, Summary Report, Department of Energy, Oct. 31, 2001, p. 4.
[3] Ibid, Vol. I, pp. ii, iv.
[4] Ibid, Vol. I, p. 4.
[5] Ibid, Vol. II, p. 4-10.
[6] Ibid, Vol. II, p. 4-29.
[7] Energy Information Administration, "U.S. Natural Gas Markets: Recent Trends and Prospects for the Future," May 2001, p. 14.
[8] Platts FAME Chart, Platts.com.
[9] "Roadmap," Vol. II, p. 4-12.
[10] Ibid, Vol. 1, p. 20.
[11] Abraham address to the Global Nuclear Energy Summit, Feb. 14, 2002.
[12] Christian Schmollinger, "Exelon Pullout, Waste Debate Threaten Nukes," *Natural Gas Week*, April 22, 2002
[13] Jenny Weil, "Fallout begins from Exelon's departure from PBMR project," *Inside N.R.C.*, April 22, 2002
[14] "Roadmap," Vol. II, p. 5-42
[15] Ibid, Vol. II, p. 4-10
[16] Ibid, Vol. II, p. 4-12
[17] Ibid, Vol. I, p. vi.
[18] Ibid, Vol. II, pp. 5-40-41
[19] Karl Stahlkopf, "Analyzing California's Power Crisis," The Energy Journal, Vol. 22, Issue 4, Oct. 1, 2001.