Nuclear Power 2010 Unveiled

Bush plan for new nuclear reactors maps out monstrous subsidies

Updated: March 2004

Critical Mass Energy and Environment Program

Public Citizen is a nonprofit consumer advocacy organization based in Washington, D.C.
For more information, please visit www.citizen.org

Executive Summary

The Bush administration's plan for subsidizing the construction of new commercial nuclear reactors went largely unnoticed when the *Nuclear Power 2010* program was first unveiled by Energy Secretary Spencer Abraham in early 2002. The Department of Energy's (DOE) web site describes *Nuclear Power 2010* as, "a joint government/industry cost-shared effort to identify sites for new nuclear power plants, develop advanced nuclear plant technologies, and demonstrate new regulatory processes leading to a private sector decision by 2005 to order new nuclear power plants for deployment in the United States in the 2010 timeframe."[1]

Details of this misguided initiative began to surface several months later, when the DOE released blueprint documents for the program. Then, through a Freedom of Information Act request, Public Citizen obtained late last year a copy of a July 2002 report prepared for the DOE entitled *Business Case for New Nuclear Power Plants: Bringing Public and Private Resources Together for Nuclear Energy*.[2] The report, which is now available on the Department of Energy's Web site, was done by Scully Capital Services Inc., an investment banking and financial services firm based in Washington, D.C.

The *Business Case* report identifies three "show-stoppers" – nuclear waste, accident risk and commissioning risks – and recommends various extreme measures to promote the construction of new reactors. These include:

- Government preferred equity investment facilities
- Subsidized federal loans
- Tax-exempt financing
- Federal power purchase agreements at above-market rates
- Federal energy credit facilities
- Taxpayer-backed insurance of last resort
- Inclusion of nuclear power in emissions credits programs

This Public Citizen analysis critiques the *Nuclear Power 2010* initiative put forward by the Bush administration. Nuclear power poses safety and security risks unlike any other source of electricity, and the issue of long-term nuclear waste management remains a costly problem. Throwing more tax dollars at nuclear power will not make it safer, cleaner or more economical. Policymakers should reject the recommendations contained in the *Business Case* report.

Feeling the Love

On Valentine's Day 2002, Energy Secretary Spencer Abraham announced the Bush administration's *Nuclear Power 2010* program, a bold initiative to promote the construction of new nuclear power plants in the U.S. within this decade. Abraham made this announcement in an address to the Global Nuclear Energy Summit, a private gathering of nuclear industry leaders from a dozen countries held at Washington's elite Cosmos Club.

"I intend to work with [nuclear] industry to help … pave the way for an industry decision to build safe, new plants,"[3] promised Abraham, whom Summit organizers described as "buoyant."[4] Abraham's generous offer of assistance came on the heels of $82,728 in campaign contributions received from the nuclear industry during his failed bid for re-election to the U.S. Senate in 2000.[5] Although Democrat Debbie Stabenow defeated Abraham, the nuclear industry got everything it bargained for when President Bush appointed the ex-senator as Secretary of Energy. Meanwhile, nuclear industry political action committees had also invested more than more than $260,000 in the Bush/Cheney presidential campaign,[6] setting the stage for one of the most pro-nuclear administrations in recent history.

Since then, the Bush administration and the Republican-dominated Congress have plowed through scientific and safety uncertainties to formally recommend construction of the controversial Yucca Mountain nuclear waste repository, supported pro-nuclear energy legislation, pushed through a rider to the 2003 omnibus appropriations bill that extended Price-Anderson insurance subsidies for nuclear operators to December 31, 2003, and increased the DOE's nuclear research and development budget by $23.5 million in fiscal year 2003.[7] Even the sobering events of Sept. 11th, 2001, did not dampen the administration's enthusiasm for a "nuclear renaissance," and Homeland Security legislation supported by the president failed to address the well-documented security vulnerabilities at U.S. nuclear power plants. In addition, there is the package of misguided policies and unusual subsidies that make up the *Nuclear Power 2010* program.

Road Map to a Rip-off

Shortly after Abraham's presentation to the Global Nuclear Energy Summit, the DOE posted on its web site blueprint documents for this program, dated Oct. 31, 2001, titled *A Roadmap to Deploy New Nuclear Power Plants in the United States by 2010*.[8] A more accurate title would have been *A Road Map to a Rip-off*.[9] The industry-dominated working group that drafted these documents noted, "Economic viability for a nuclear plant is difficult to demonstrate."[10] The report went on to recommend government/industry cost-share arrangements to stimulate investor interest, which is otherwise conspicuously lacking.

Around the same time, the administration presented its 2003 budget request to Congress, including $38.5 million for *Nuclear Power 2010*, under the Nuclear Energy Technologies research and development line item. Authorizing language supporting this new program was approved with virtually no debate as an amendment to Senate energy legislation in 2002. The 107th Congress adjourned without enacting the energy bill, but a few months later when the 108th

Congress finally approved the 2003 spending bill, it included approximately $35.3 million for *Nuclear Power 2010*.

The 2004 spending bill appropriated about the same level of funding as 2003 to the nuclear research and development (R&D) program. In its 2005 budget request, the Bush administration is proposing $28.8 million to support Early Site Permit demonstration projects[11] and to develop a "new generation" of nuclear reactors, as well as nuclear technologies to generate hydrogen.[12]

Energy legislation in the 108th Congress also authorizes continued spending on *Nuclear Power 2010*. The original Senate energy bill, sponsored by Sen. Pete Domenici (R-N.M.), a prominent nuclear advocate, also legislated the implementation of specific recommendations to advance the *Nuclear Power 2010* program from a July 2002 report commissioned by the DOE, entitled *Business Case for New Nuclear Power Plants: Bringing Public and Private Resources Together for Nuclear Energy*.[13] This included government financing for new reactors through power purchase agreements, loan guarantees, and federal lines of credit.

Unable to overcome procedural hurdles, the Senate resurrected the energy bill from the 107th Congress and passed it on the Senate floor on July 31, 2003. The conference report for the House and Senate versions of the bill was filibustered in November 2003, primarily due to a provision that would give a liability waiver to producers of the gasoline additive MTBE, which has contaminated groundwater across the country. Also controversial was the excessive cost of the bill (with $31 billion in tax breaks, including $5.5 billion for the nuclear industry) and the numerous pork projects tucked into the bill during the conference process.

Meanwhile, there has been virtually no public discussion about the *Nuclear Power 2010* program. Despite the growing budget deficit, Congress has failed to debate the merits or direction of *Nuclear Power 2010* and it seems to have escaped the attention of most news media outlets. Even the DOE has been slow to release details of the program publicly.

Perhaps this is because the outrageous policy recommendations emerging from this program could not survive public scrutiny.

Nuclear Power 2010 unveiled

According to the program's blueprint documents, *Nuclear Power 2010* aims to advance and expand the nuclear industry's *Vision 2020* policy, which has as its goal the addition of 50,000 megawatts of atomic power generation (i.e. 50 new reactors) by the year 2020. The DOE's web site describes the program as, "a joint government/industry cost-shared effort to identify sites for new nuclear power plants, develop advanced nuclear plant technologies, and demonstrate new regulatory processes leading to a private sector decision by 2005 to order new nuclear power plants for deployment in the United States in the 2010 timeframe."[14]

Through a protracted Freedom of Information Act request, Public Citizen obtained late last year a copy of the July 2002 report, *Business Case for New Nuclear Power Plants: Bringing Public and Private Resources Together for Nuclear Energy*. The report, which is now available

on the DOE's web site, was done by Scully Capital Services Inc., an investment banking and financial services firm based in Washington, D.C. It determined that total capital costs for a new nuclear reactor could be in excess of $1.6 billion and assessed strategies the federal government might use to promote the construction of new nuclear plants by mitigating key market risks that make nuclear power noncompetitive. Among the strategies identified in the report:

- Establishment of a government preferred equity investment facility. The report recommends the establishment of a federal equity facility to fund or partially fund "first-of-a-kind engineering costs" for new reactors as one of the most powerful options for government intervention. Nuclear vendors balk at the sky-high capital costs associated with designing proposed new reactors, especially given the significant uncertainty about demand for the finished product. It just doesn't make good business sense. But the report assumes that the federal government would not have the same prudent qualms. Specifically, the report proposes a generous taxpayer-backed facility ("sized to address up to worst-case development cost overrun scenarios")[15] to provide up to $200 million in government preferred equity. Interest rates would be set at the Treasury's borrowing rate – typically a bargain compared to commercial lending rates – and with repayment delayed until the company's cash flows were sufficient and stretched over the expected lifetime of the plant. To further sweeten the deal for other lenders, the company's obligation to this government fund would be senior to common equity returns *but subordinate to debt repayment*. This means that in the event of bankruptcy, taxpayers would likely be left footing the bill.

- Subsidized federal loans. Beyond engineering costs, the high capital costs and long construction timelines for reactors "suggest that power production from new nuclear plants may be non-competitive with other base load alternatives."[16] As an antidote, the report proposes that federal direct loans or loan guarantees be made available for projects that "promote the nuclear energy policy objectives of the National Energy Policy"[17] to finance up to one-third of a project's costs. Interest rates would again be at the Treasury's below-market borrowing rate, and the authors additionally recommend interest holidays and principal repayment schedules generously extending to 30 years after project completion.

- Tax-exempt financing. As another way around nuclear power's high capital costs, the report recommends tax-exempt financing for nuclear construction projects, pointing out that this would require a change in federal law. New legislation would allow for-public or non-profit ownership of commercially operated plants and the sale of bonds as a source of low-cost funding. Interest payments to creditors would be tax-free.

- Federal power purchase agreements at above-market rates. To further mitigate nuclear power's high capital costs, the report brazenly recommends that the federal government commit up-front to 10-year power purchase agreements with nuclear companies. Under this scheme, the government would purchase a specified volume of power from participating operators at guaranteed prices, as much as 50% above market rates. The government would then resell this power to the market, leaving taxpayers to absorb the resulting loss.

- Establishment of federal energy credit facilities. The report identifies the risk of construction cost overruns and delays as another deterrent to the construction of new nuclear plants.

Apparently the nuclear industry and investors learned their lesson when the last reactor licensed in the U.S., Tennessee's Watts Bar facility, took 23 years to bring online and cost $8 billion, worsening the financial troubles of its quasi-governmental owner, the Tennessee Valley Authority. The proposed taxpayer-backed standby credit facility would provide a loan of up to one-third of a project's capital costs in the event of "unforeseen construction cost overruns."[18] Repayment would be "subject to contractual provisions that may provide for cash flows to be shared between equity and the [federal credit] facility,"[19] again imposing nuclear power's economic uncertainties on taxpayers.

- Insurance of last resort. According to the report, the liability risks and insurance issues associated with nuclear power's security vulnerabilities in the post-9/11 environment are critically important to [the nuclear industry's] ongoing viability," *even assuming reauthorization of Price-Anderson liability limits*. Further externalizing nuclear power's risks, the report recommends that the federal government underwrite insurance for "onsite cleanup risks beyond the policy limitations provided by commercial insurers," extending to "property damage, third party liability, and workmen's compensation for accident events that are other-than-operational in nature."

- Inclusion of nuclear power in emissions credits programs. The report argues that since nuclear power plants have low carbon emissions *at the point of operations*, nuclear energy should be eligible for clean air incentive programs, and that implementing a nuclear-friendly "carbon credit" program would be one of the most effective ways to promote nuclear power. But increasing nuclear hazards to reduce greenhouse emissions is the classic jump from the frying pan into the fire. Further, despite the nuclear industry's insistent advertising campaign, nuclear energy is not clean. In December 1998, the Better Business Bureau upheld a complaint against the nuclear industry's "clean air" advertising campaign, on the basis that nuclear plants routinely emit radioactive pollutants into the air. Other environmental consequences of nuclear power include heavy carbon emissions from energy intensive reactor construction and fuel enrichment operations, radioactive discharges from uranium mine tailings and reactor operation, thermal pollution affecting marine ecosystems near power plants, and long-lived radioactive wastes. Making nuclear power eligible for clean energy incentive programs undermines the purpose for these programs and further diminishes their effectiveness in promoting *real* energy alternatives.

Show-stoppers

The report also identifies three "show-stopper" risks that, in the view of the nuclear industry, "must be dealt with *fully*, or no new plants will be ordered."[20]

Nuclear waste tops the list. The authors summarize the results of industry interviews as follows: "Utility executives were unanimous in their view that proceeding with the Yucca Mountain [repository] licensing and construction process is paramount for new nuclear plant orders to be placed…"[21] In the context of the Bush administration's policy of promoting nuclear power, this statement exposes the not-so-hidden political agenda behind the DOE's supposedly science-based support for the proposed high-level waste dump in Nevada.

Currently, despite the powerful (and expensive) White House/nuclear industry coalition backing, the Yucca Mountain repository faces an uncertain future. The state of Nevada and others have filed numerous lawsuits seeking to block the project, the DOE has yet to gain approval from the Nuclear Regulatory Commission – a process expected to be "the most complex administrative proceeding in the history of this country"[22] – and with a $60 billion price tag, the program competes with other spending priorities. With these uncertainties lingering at Yucca, the Bush administration, hedging its bets, has launched the new "Advanced Fuel Cycle Initiative." In a reversal of U.S. nonproliferation policy in place since the 1970s, this program aims to promote commercial reprocessing of high-level nuclear waste, a process whereby plutonium is separated out, ostensibly for reuse as reactor fuel. Presumably, the political proponents of a nuclear renaissance hope to allay industry (and public) unease about the nuclear waste problem by pointing to the promise of this expensive research and development program.[23] But reprocessing is no silver bullet and even the DOE's 2003 report on the Advanced Fuel Cycle Initiative states that high-level nuclear waste storage/disposal facilities will still be needed to support any reprocessing scheme.

According to the *Business Case* report, the nuclear industry is also concerned – albeit "to a lesser degree" – about the high costs of managing the vast volumes of so-called low-level waste that nuclear power plants generate. Obligingly, the NRC has recently initiated a controversial rulemaking process that aims to reclassify certain radioactive wastes, allowing them to be disposed of in unregulated dumps or even recycled into general commerce. This unscrupulous maneuver, which would result in increased public exposures and undetermined health and environmental consequences, could save the nuclear industry millions of dollars in waste management costs.

Accident risk is the second "show-stopper" identified. According to the report, utilities will not build new reactors without an extension of the Price-Anderson Act, legislation that limits the liability of nuclear operators in the event of an accident or attack and results in a sizable annual indirect subsidy in terms of foregone insurance premiums. The fact that the nuclear industry is unwilling and/or unable to purchase insurance on the open market undermines assurances by nuclear energy enthusiasts that proposed new reactors would be inherently safe and financially viable.

Price-Anderson has been reauthorized four times since it was originally enacted in 1957, usually for 10- or 15-year periods. As currently authorized, Price-Anderson provisions apply to reactors licensed before Dec. 31, 2003. The pending energy legislation would extend this coverage to reactors licensed within the next 20 years.

Finally, the report names **commissioning risks** as a "show-stopper," describing this issue as the "risk of costs of an extended construction period, commissioning delays, or a complete stop to operations because of an intervention (e.g. a lawsuit)."[24] The report recommends that the NRC further grease the skids of its quasi-judicial licensing process to preclude successful interventions from opponents. An unnamed utility executive is quoted commenting on the "nightmare" experience at Shoreham, the Long Island reactor that was built but then not licensed to operate after interveners demonstrated the impossibility of evacuating nearby communities in the event of an accident. "Interveners have too many openings," the executive complains.[25]

While successful interventions like these are no doubt inconvenient to companies whose license applications are found to be defective, it is obviously inappropriate to suggest that the solution lies in limiting the right of the public to raise contentions in defense of safety.

Greasing the Wheels

The blueprint documents for the *Nuclear Power 2010* program describe three phases in which the aforementioned subsidies would take effect:

1. Regulatory Approval (2002-2006) – The emphasis during this phase is on identifying sites for potential new reactors, streamlining the NRC's licensing process and securing regulatory approval for Early Site Permits." Costs for this phase are estimated to range from $183-238 million, plus $40-45 million for each additional application, with the federal government picking up half the tab.

2. Design Completion (2003-2007) – During this phase, the detailed engineering and design work for at least one light water and one gas-cooled reactor would be completed. The blueprint document suggests costs ranging from $150-300 million per design requiring federal subsidization at an unspecified rate.

3. Construction and Startup (2005-2010) – This final phase would combine private financing and a menu of federal credits and incentives to benefit nuclear power plant owners.

Phase 1 projects now under way extend well beyond typical research and development activities. In essence, one arm of government (DOE) is funding commercial industry to seek licensure from another arm of government (NRC). While the NRC asserts its independence from the *Nuclear Power 2010* program, the DOE blueprint documents include clear recommendations to grease the skids of NRC's licensing process, reaffirming "the commitment of the Administration to expedite applications for new plants through the NRC."[26]

Under the *Nuclear Power 2010* program, the DOE awarded energy giants Exelon, Dominion and Entergy a total of $3 million in grants to prepare and submit Early Site Permit applications to the NRC. In addition to commercial nuclear power sites, federal nuclear weapons sites at Savannah River, GA., and Portsmouth, Ohio, were also studied, chipping away at the supposed firewall between commercial and military nuclear operations.

Follow the money

These companies are hardly in need of corporate welfare. Dominion, Entergy and Exelon – the companies currently benefiting from *Nuclear Power 2010* grants – each reported multimillion-dollar profits in 2002. In a money trail that comes full circle, these three companies contributed $1.6 million in "soft money" to party election operations in the last cycle and gave an additional $1.3 million to political action committees (PACs), including nearly $150,000 to members of the Senate energy committee. Over the last three election cycles, current members of this powerful Senate committee took in a total of close to $1 million from nuclear PACs.[27]

Company	2002 Reported Net Income[28]	2002 soft money Contributions[29]	2002 PAC Contributions	2002 Contributions to Senate Energy Committee Members' PACs
Exelon	$1.440 billion	$545,300	$588,872	$60,500
Dominion	$1.362 billion	$802,450	$310,324	$24,500
Entergy	$623 million	$263,210	$430,827	$60,500

Fiscally, environmentally and in terms of public health and safety, these taxpayer handouts to the mature nuclear industry cannot be justified. The architects of *Nuclear Power 2010* apparently want us to believe that these extreme measures would be temporary. They argue that high engineering costs would be an insurmountable hurdle for only the first few reactors built and would decline quickly; a "short-term predicament," as Scully Capital puts it. In fact, there is little reason to assume that initial proposed designs would become standard, that increased demand for additional reactors would stabilize without continued federal intervention, or in general that the investment climate for nuclear power construction would improve over time. After all, nuclear power is half a century old in the U.S. and investment trends over recent decades have brought nuclear construction to a standstill. As for proposed new models, the authors of the report acknowledge that "the jury is still out in the financial community when it comes to the economics of power production using new reactor designs."[30]

Fool me once, fool me twice. In any case, it is unlikely that the nuclear industry would support the phase-out of these sugar-daddy subsidies, were they implemented. By way of comparison, the Price-Anderson Act was enacted as a temporary insurance subsidy to the fledgling nuclear industry in 1957 but has been repeatedly extended beyond its original 10-year timeframe. Under the influence of nuclear industry lobbyists who threaten doom and gloom if Price-Anderson were allowed to expire, Congress is expected to reauthorize the Act again this year.

Conclusion

The *Business Case* report is unambiguous about the lack of investor interest in the Bush administration's nuclear revival scheme: "Lenders are not yet ready to accept exposure to risks that have a nuclear element as their central focus."[31] And with good reason. Nuclear power poses safety and security risks unlike any other source of electricity, and the issue of long-term nuclear waste management remains a costly problem. Throwing more tax dollars at nuclear power will not make it safer, cleaner, or more economical. Implementing the outlandish recommendations in this report would hurt consumers, taxpayers and the environment and only serve to pad the pockets of nuclear profiteers.

Policy Recommendations

1. The DOE should reject the recommendations of Scully Capital's *Business Case* report and cancel the *Nuclear Power 2010* program.

2. Lawmakers should reject provisions in House and Senate energy legislation that enshrine *Nuclear Power 2010* in law and authorize annual spending on this misguided program.

3. Lawmakers should not extend Price-Anderson nuclear insurance subsidies to new reactors as proposed in the current energy legislation.

4. Senators should oppose the nuclear title in the current energy legislation which, in addition to permanently reauthorizing the Price-Anderson Act, authorizes more than $2 billion for nuclear energy research and development and another $1.1 billion for a nuclear plant in Idaho to generate hydrogen fuel, a boondoggle that would make a mockery of clean energy goals.

5. National energy policy should reject the construction of new nuclear reactors and promote safe, clean and affordable energy alternatives.

Endnotes

[1] http://www.ne.doe.gov/, viewed 02/22/03
[2] The full report is available on the DOE Office of Nuclear Energy, Science and Technology web site at http://www.nuclear.gov/home/bc/businesscase.html.
[3] http://www.energy.gov/HQDocs/speeches/2002/febss/GlobalNuclearEnergySummit.html, viewed 02/22/03
[4] http://www.energystrategists.com/page16.html viewed 02/22//03
[5] Public Citizen Congress Watch analysis
[6] Center for Responsive Politics, http://www.opensecrets.org/news/nuclear/index.asp.
[7] This figure compares funding for the Nuclear Energy Plant Optimization, Nuclear Energy Research Initiative, and Nuclear Energy Technologies line items, as well as funding for two new line items in FY03 - the Generation IV Nuclear Energy Systems Initiative and the Nuclear Hydrogen Initiative. It does not include the "Advanced Fuel Cycle Initiative" line item.
[8] The full report is available online at http://www.ne.doe.gov/nerac/NTDRoadmapVolII.PDF.
[9] See also Public Citizen's October 2002 analysis, *Road Map to a Rip-off: The Bush-Cheney nuclear revival puts contempt for consumers on glowing display*, online at http://www.citizen.org/documents/ACF93C.pdf.
[10] *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.
[11] Early Site Permits (ESPs) are partial construction permits granted by the Nuclear Regulatory Commission. Early Site Permits allow nuclear utilities to "bank" pre-approved sites for potential new reactors without committing to construction of a particular reactor design.
[12] Using nuclear energy to produce hydrogen makes a mockery of clean energy goals.
[13] The full report is available on the DOE Office of Nuclear Energy, Science and Technology web site at http://www.nuclear.gov/home/bc/businesscase.html.
[14] http://www.ne.doe.gov/, viewed 02/22/03
[15] *Business Case for New Nuclear Power Plants: Bringing Public and Private Resources Together for Nuclear Energy*, Scully Capital, July 2002, pg. 3-41
[16] Ibid, pg. 3-42
[17] Ibid, pg. 3-42
[18] Ibid, pg. 3-44
[19] Ibid, pg. 3-44
[20] Ibid, pg. 3-6
[21] Ibid, pg.3-14
[22] Commissioner McGaffigan's comments on SECY-00-0017: http://www.nrc.gov/reading-rm/doc-collections/commission/cvr/2000/2000-0017vtr.html
[23] The energy bill allocates $865 million dollars over the five years to the Advanced Fuel Cycle Initiative.
[24] *Business Case*, pg. 3-16
[25] Ibid, pg. 3-16
[26] *Roadmap*, Vol. 1, pg. 47
[27] Public Citizen analysis based on Center for Responsive Politics data.
[28] Securities and Exchange Commission filings
[29] Center for Responsive Politics analysis at www.opensecrets.org
[30] *Business Case*, pg. 3-35
[31] Ibid, pg. 3-29