

fact sheet

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Since 1971, Greenpeace has been the leading voice of the environmental movement. We work throughout the world to protect oceans and ancient forests, and to fight toxic pollution, genetic engineering, global warming and nuclear threats. Without compromise, Greenpeace takes on powerful political and corporate opposition to protect the future of our planet.

The Global Nuclear Energy Partnership

The Global Nuclear Energy Partnership (GNEP) is the Bush Administration's plan for expanding the nuclear power industry in the U.S. and around the globe. If President Bush's plan works as advertised, it would reduce U.S. dependence on foreign oil, improve the environment by reducing CO2 emissions, encourage clean development around the world and reduce the risk of nuclear proliferation.

To achieve this President Bush's Global Nuclear Energy Partnership would include: a new generation of nuclear plants in the U.S., the reprocessing of nuclear waste and a fast reactor demonstration project that would use the reprocessed waste as fuel. Under GNEP, nuclear nations would sell non nuclear countries reactors and provide the nuclear fuel and then accept the radioactive waste back for reprocessing and eventually disposal.

However, the Bush Administration has yet to convince even those who support nuclear power that GNEP is a good idea. John Deutsch of the Massachusetts Institute of Technology (MIT), a former Department of Energy official and the co-author of the MIT report on the future of nuclear power, told the National Academies of Science that the Global Nuclear Energy Partnership is "a goofy idea."

FOREIGN OIL DEPENDENCE

Expanding the use of nuclear power will have little or no impact on the U.S. addiction to foreign oil. Nuclear power plants generate two things: electricity and the radioactive materials to produce nuclear weapons. Since less than 3 percent of U.S. electricity is generated by oil, nuclear power's role in addressing U.S. oil addiction is extremely limited. The U.S. Department of Energy expects that percentage to drop to 1.68 percent by 2025.

CO2 EMISSIONS

Because nuclear power is prohibitively expensive and takes too long to bring on line, it can not abate catastrophic climate change. Alternatively, every dollar spent on energy efficiency and renewable technology goes seven to ten times further in displacing CO2 than a dollar spent on nuclear power. In 2000, the U.S. Department of Energy conducted an exhaustive technology assessment. They concluded that technologies already exist that can reduce U.S. greenhouse gas emissions to below 1997 levels by the year 2020 while reducing oil imports by 2 million barrels per day and enhancing national security. Despite the misguided efforts of Senators McCain and Lieberman to subsidize new nuclear plants as a hedge against climate change, the DOE study found that these reductions are achievable without any new nuclear reactors.

CLEAN DEVELOPMENT

The Kyoto protocol, the international treaty to limit greenhouse gases, has already rejected nuclear power as part of its Clean Development Mechanism (CDM). Despite industry

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efforts to have nuclear included in the CDM and thereby receive additional operating subsidies, the signatories to the treaty rejected nuclear power because it was neither “clean” nor “sustainable.”

The U.S. Better Business Bureau came to a similar conclusion when it found that the nuclear industry’s advertising campaign claiming to be “environmentally clean” was false and that the industry should stop claiming that it produces power “without polluting the environment” because such claims were “unsupportable.” They found that that the “environmentally clean” claim was “premature at best,” because there is no permanent disposal solution for highly radioactive waste created by nuclear plants.

NUCLEAR PROLIFERATION

In his 2003 State of the Union Address President Bush claimed that “the gravest danger in the war on terror, the gravest danger facing America and the world, is outlaw regimes that seek and possess nuclear, chemical, and biological weapons.” Unfortunately, Mr. Bush’s Global Nuclear Energy Partnership would only increase this danger.

Any illusion that the spread of nuclear power could be separated from nuclear weapons proliferation should have been shattered with India’s first nuclear test in 1974. India’s nuclear program began with a research reactor provided by Canada and run with heavy water supplied by the United States. According to the New York Times, American technicians trained Indian scientists to reprocess plutonium from the radioactive fuel and that plutonium was used in India’s first nuclear bomb.

The United States, Russia, France, Britain, Belgium, Canada, China, Germany, Norway, Sweden and Switzerland have all contributed to the spread on nuclear weapons in India and elsewhere. By providing everything from their expertise to actual bomb designs these countries have proven their inability to police the “peaceful atom” and prevent nuclear weapons proliferation. Yet these are the nations at the heart of the Bush Administration’s Global Nuclear Energy Partnership.

In 2004, a report from Jane’s Intelligence Review concluded that an increase in the number of nuclear power plants worldwide would directly increase the risks associated with nuclear weapons proliferation.

A NEW GENERATION OF NUCLEAR REACTORS

President Bush and a republican Congress have provided handouts to nuclear corporations in an effort to encourage them to construct new nuclear reactors that the industry has been unwilling to build on its own. The Bush administration has split the cost of siting three new reactors with Exelon, Dominion and Entergy. However, all three corporations have voiced severe reservations about the viability of new nuclear power plants.

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In May 2004, Thomas Capps, then Chairman & CEO of Dominion, stated that “If you announced you were going to build a new nuclear plant, Moody’s and Standard & Poor’s would assuredly drop your bonds to junk status.” A few months earlier, the President of Entergy, Don Hintz acknowledged that “No energy company can afford to take the financial risk of \$1.5-2 billion to build one right now.” While Exelon’s CEO John Rowe continues to blame the nuclear waste problem for his lack of interest in ordering new nuclear power plants.

Despite government approved reactor designs, the absence of new nuclear construction in the U.S. is understandable. The nuclear industry has been unable to reverse its track record of enormous cost overruns and with the deregulation of the electricity market in much of the U.S., nuclear corporations can no longer pass these exorbitant costs onto consumers.

General Electric (GE) promised to construct its new Advanced Boiling Water Reactor (ABWR) in Japan for 1500/kw. The actual cost for the first reactor was \$3,282/kw, more than twice what GE promised more than twice what the nuclear corporations’ claim that they can afford. Areva’s Evolutionary Pressurized Reactor (EPR) has not yet received approval in the U.S. However, construction of the EPR in Finland, only begun in 2005, is already a year over schedule. Due to major construction problems with the Finish reactor, Areva was expected to lose as much as \$922 million of income in 2006.

REPROCESSING NUCLEAR WASTE

The Bush administration intends to reverse nearly 30 years of federal policy and allow for the reprocessing of radioactive waste. The concept of reprocessing nuclear waste is not new, the idea is to extract the unused uranium and plutonium and use that to fuel a reactor. Jimmy Carter, the only nuclear engineer ever to serve as president, banned the practice in 1977 due to concerns that encouraging commerce in plutonium & uranium would increase the chance that these materials would be used to construct nuclear weapons.

In hearings held before the U.S. Congress, even proponents of nuclear power concluded that reprocessing radioactive waste was unsafe and uneconomical and that President Bush’s Partnership was an unnecessary waste of resources. Matthew Bunn of Harvard University testified that, “a near-term decision to reprocess U.S. commercial spent nuclear fuel would be a serious mistake, with costs and risks far outweighing its potential benefits.” Mr. Bunn, also stated that, “reprocessing is far outpacing the use of the resulting plutonium as fuel, with the result that over 240 tons of separated, weapons-usable civilian plutonium now exists in the world, a figure that will soon surpass the amount of plutonium in all the world’s nuclear weapons arsenals combined.” He cited the 1998 Royal British Society study that determined that diversion of this plutonium for nuclear weapons was an “extreme concern,” and testified that reprocessing would undermine current U.S. efforts to prevent nuclear proliferation.

Richard K. Lester of the Massachusetts Institute of Technology cited the Institute’s study on the Future of Nuclear Power, which concluded that, “(w)e do not believe that a

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convincing case can be made on the basis of waste management considerations alone that the benefits of advanced, closed fuel cycle schemes would outweigh the attendant safety, environmental, and security risks and economic costs.” The MIT study also found that other waste management strategies are available that result in long-term risk reduction at least as great as those claimed for reprocessing with fewer short-term risks and lower development and deployment costs.

Richard L. Garwin, IBM fellow emeritus and a Commissioner on the "Rumsfeld" Commission to Assess the Ballistic Missile Threat to the United States testified that the new reprocessing scheme included in GNEP is not proliferation resistant and in fact makes it easier for terrorists to acquire bomb material. According to Garwin, “To obtain 10 kg of plutonium from ordinary PWR spent fuel containing 1% Pu, a terrorist would need to acquire and reprocess 1000 kg of highly radioactive material.” If GNEP plan were instituted, “the plutonium will be contaminated only with a modest amount of transuranics (TRU) so that the terrorist would need to reprocess a mere 11 kg of material, and according to recent DOE studies, this would have only about 1/2000 of the penetrating radiation that would count as "self protecting."

But the risk of nuclear weapons proliferation wasn't the only reason the US government banned this technology. From 1966 to 1972, Nuclear Fuel Services (NFS) operated a commercial reprocessing facility in West Valley, NY. After a four-year shutdown, NFS determined that it was too expensive to bring the facility up to regulatory standards and so abandoned the site. The Department of Energy (DOE) originally estimated that the cleanup effort at the site could be completed by about 1990. However, in May 2001, the US General Accounting Office, (GAO) determined that clean up was not nearly complete and would take up to forty years to finish. GAO calculated that the West Valley cleanup costs would total about \$4.5 billion.

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Steve Fetter of University of Maryland testified that reprocessing would not obviate the need for a permanent repository for the waste and would be massively more expensive. He cited a National Academy of Sciences (NAS) report that examined the issue in 1996 and stated that:

the excess cost for a separation-and-transmutation system over once-through disposal would be “no less than \$50 billion and easily could be over \$100 billion” for 62,000 tons of spent fuel (the current legislated limit on Yucca Mountain). This conclusion remains valid today; there have no technical breakthroughs or dramatic cost reductions in either separation or transmutation technologies.

Reprocessing radioactive waste has proven to be both an economic and environmental disaster. Increasing commerce in nuclear bomb materials will not make America safer. Reprocessing nuclear waste will create opportunities for theft and diversion and will provide even more targets for terrorists.

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FAST REACTORS

According to the President Bush's GNEP scheme, after the radioactive wastes are reprocessed they would be converted in reactor fuel for use in Advanced Burner Reactors (ABR). While these reactors do not even exist they are conceptually similar to fast breeder reactors without the uranium blanket for "breeding" plutonium. However, the experience with "fast breeder" reactors in the U.S. and elsewhere has shown that they are expensive and dangerous.

In November 1955, the first U.S. "power reactor" ever to produce electricity, the EBR-1, (experimental breeder reactor) melted down during testing. The public was not made aware of this meltdown until Lewis Strauss, head of the Atomic Energy Commission and the man who claimed nuclear power would be "too cheap to meter" was confronted by the Wall Street Journal and had to admit his ignorance of the accident.

Not to be dissuaded by the meltdown of the EBR-1, The Power Reactor Development Corporation, a consortium of 35 utilities headed by Detroit Edison forged ahead with the first commercial fast breeder reactor. The Fermi reactor was to be a scaled up version of the EBR-1. On October 6, 1966 the Fermi reactor also melted down.

The U.S. is not the only country to experience accidents with fast breeder reactors. Even the highly touted French nuclear program proved incapable of making the technology work safely and economically. France's "Superphenix" was permanently shut down in 1987 after leaking 20 tons of sodium coolant. The \$10 billion dollar reactor only operated for 278 days in its 11-year history.

Japan has had no better luck with its fast breeder program. The Japanese "Monju" fast breeder reactor was shutdown in 1995 after three tons of sodium leaked causing reactor to over heat and burning holes in cooling pipes. In the aftermath of the accident, the plant manager was so distraught that he committed suicide.

Both the British and the Germans have terminated their breeder reactor programs and the U.S. Congress killed off the Clinch River breeder reactor program decades ago.

The Bush Administration's Global Nuclear Energy Partnership will not cure the U.S. addiction to foreign oil and it will not slow global warming. It is a cynical attempt to use the legitimate concern over climate change to help bolster the moribund nuclear industry and enrich those corporations that helped to put the Bush Administration in office. The President's ill-conceived partnership will only increase the potential that nuclear weapons material and knowledge will fall into the wrong hands. President Bush is dangerously wrong, hopefully it will not take a dirty bomb or a mushroom cloud to make him realize it.

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