ALLIANCE FOR NUCLEAR ACCOUNTABILITY

NUCLEAR BUDGET BUSTERS

The U.S. Department of Energy's Riskiest, Most Unaccountable Projects

March 2012

Alliance for Nuclear Accountability

A national network of organizations working to address issues of nuclear weapons production and waste cleanup

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Nuclear Budget Busters

The U.S. Department of Energy's Riskiest, Most Unaccountable Projects

The U.S. Department of Energy (DOE) is responsible for managing federally funded nuclear programs ranging from loan guarantees for new reactors to construction of plants for manufacturing new warhead components to cleaning up the legacy of nuclear weapons production and promoting alternative energy technologies. DOE's budget request for Fiscal Year 2013 totals $27.2 billion.

The findings in this review of seven major Department of Energy projects by the Alliance for Nuclear Accountability (ANA), a national network of groups from communities downwind and downstream from U.S. nuclear sites, are disturbing. DOE continues to sponsor many programs with both runaway costs and unacceptably high risks in terms of public health, safety, the environment and nuclear proliferation.

As repeatedly noted by the U.S. Government Accountability Office (GAO), many DOE projects are financially out of control. Projected spending for the programs profiled in this report has soared to as much as ten times the original agency estimates. Several are years past their originally scheduled completion deadlines with actual operational dates still unknown.

Today, total cost estimates for these seven riskiest DOE programs add up to more than $55 billion. This figure includes more than $13.4 billion in construction spending for nuclear weapons research and production facilities (including the plutonium facility at Los Alamos National Laboratory, which NNSA has decided to delay for five years), $10 billion for nuclear bomb and warhead Life Extension Programs, and $12 billion for the MOX plutonium plant that has no customers for the fuel it will produce.

In addition to runaway costs, these projects have huge environmental, safety and proliferation dangers.

- Production of highly toxic mixed-oxide (MOX) plutonium reactor fuel from warhead plutonium is an enormous environmental danger as demonstrated when Fukushima Daiichi reactor #3, which used plutonium, exploded and melted down.

- Construction of weapons research and production plants, such as the Uranium Processing Facility at Oak Ridge, the Chemistry and Metallurgy Research Replacement Project at Los Alamos, the National Ignition Facility at Lawrence Livermore, and the new Kansas City Plant, send the wrong signal to other countries pursuing nuclear programs.

- Design and production of new versions of the W78 warhead and B61-12 bomb under the guise of Life Extension Programs undercut arms control measures including New START.

- Poor oversight at the Hanford Waste Treatment Plant could result in criticalities, explosions, and a plant that fails to treat all of the waste included in its mission.

At the same time it is pursuing these dangerous, budget-busting nuclear projects, DOE is failing to provide adequate funding for its other high priority missions: cleaning up the radioactive and toxic legacy from decades of U.S. nuclear weapons research, testing, and development; funding much needed nonproliferation programs to secure fissile materials around the world; and promoting safe, clean energy alternatives.

Despite some progress, DOE estimates its remaining clean-up obligation at between $275 and $308 billion. Environmental remediation schedules stretch out to at least 2038 and as far as 2062 at some sites. Despite the urgency of cleaning up legacy waste before it causes further contamination, DOE's FY 2013 budget request does not fund cleanup programs sufficiently to comply with current, legally enforceable clean-up agreements and legacy management requirements. The FY 2013 budget request also undermines nonproliferation efforts by underfunding key programs to secure loose nuclear material. Similarly, DOE has underfunded research into carbon-free, nuclear-free technologies, which can meet the nation's future energy requirements.

Based on its analysis, the Alliance for Nuclear Accountability concludes that DOE's high-risk, budget-busting projects should be reevaluated, scaled down or terminated. Among specific recommendations:

- Congress should halt all funding for the mixed oxide (MOX) plutonium fuel fabrication plant, and redirect DOE to reinstate the immobilization track for plutonium disposition.

- Congress should halt taxpayer funding for new nuclear weapons projects and require an independent review by the JASONs to determine if the mission for production facilities and programs has shifted, potentially making them unnecessary.

- Congress should limit all nuclear weapons Life Extension Programs to refurbishment of components necessary to maintain existing safety and reliability.

- GAO and the Office of Management and Budget should regularly audit DOE projects and hold project managers accountable for significant overruns.

- Congress should reject accelerated funding for the UPF until uranium operations at Y12 reflect the nation's current nuclear policy including an increasing demand for dismantlement of retired warheads.

- Congress should support DOE's budget request to defer funding CMRR construction for at least five years.

PROJECT SUMMARIES

Chemistry and Metallurgy Research Replacement (CMRR) Project is proposed to replace an existing building at Los Alamos National Laboratory in New Mexico in order to expand capacity to produce plutonium "pits" or "cores" for nuclear warheads.

- Original cost in 2004 was estimated to be between $350-$500 million, and the completion date was 2011.
- The total cost was estimated to be $5.86 billion in FY 2010 with a completion date of 2022.
- Status – The DOE has deferred construction of this facility for five years.

Uranium Processing Facility (UPF) has been proposed to manufacture "secondaries" (components for nuclear warheads) and to maintain NNSA's basic nuclear weapons capabilities at Oak Ridge in Tennessee.

- Original cost in 2005 was estimated to be between $600 million and $1.5 billion and was to be completed in 2018.
- FY 2013 budget request: $340 million, more than double last year's appropriation. The total estimated cost is between $4.2 billion and $7.5 billion and completion is scheduled for 2024.
- Risk - The UPF will be over-sized and built for the wrong mission.

National Ignition Facility (NIF) at Lawrence Livermore National Laboratory in California was intended to work on nuclear weapon designs, provide for weapon effects tests and develop inertial fusion energy. Despite nearly a decade of operations, "ignition" has not been attained.

- Original cost in 1994 was estimated at $677 million and the completion date was 2002-2003.
- FY 2013 budget request: $460 million. Total estimated construction cost is $7 billion. NIF is costing an additional $400 million a year to operate. Costs are tied to NIF's changing mission, with promises of "ignition" no longer included.
- Risk – NIF will continue to spend money on an unattainable mission, rather than using the facility for research in earth sciences and astrophysics.

B61-12 Nuclear Warhead Life Extension Program (LEP) would modify a B61 nuclear bomb, which is deployed in NATO countries and prepare it for delivery by a new aircraft that is seriously over budget and behind schedule.

- Original cost in 2009 for a study was $32.5 million, and the completion date was 2012. B61-12 production was slated to end in 2022-2023.
- FY 2013 budget request: $369 million, a 66% increase over 2012 appropriation. Total estimated costs are approaching $5 billion.
- Risk – Manufacturing a substantially modified B61-12 warhead that will not have a mission and may lack a delivery vehicle.

W78 Nuclear Warhead Life Extension Program (LEP) would potentially design a new warhead that could substitute for the W78 and the W88 warheads.

- Original cost in 2010 for a feasibility study was $26 million and the completion date was 2021.
- FY 2013 budget request: $76.6 million. Out-year estimates have not been provided by NNSA. Completion of the feasibility study is estimated for October 2013.
- Risk – The proposed W78 LEP may replace the W87 warhead, which has more modern features as a result of a recently completed LEP.

Mixed Oxide (MOX) Plutonium Fuel Fabrication Facility under construction at the Savannah River Site in South Carolina would produce MOX fuel for commercial nuclear reactors though there are no U.S. reactors contracted to use that fuel.

- Original cost in 2004 was to be $1.6 billion, and the completion date was 2007.
- FY 2013 budget request: $388 million for construction. Total estimated cost is $7.1 billion. Construction is to be completed in 2012 with cold start-up in 2013.
- Risk – The MOX plant will produce expensive plutonium fuel that no utilities want to buy. The MOX plant may sit idle for years while the Nuclear Regulatory Commission tests and licenses the fuel.

Waste Treatment Plant (WTP) is the world's largest radioactive waste treatment facility, and is slated to process and stabilize most of the 53 million gallons of radioactive and chemical waste at the Hanford site in Washington.

- Original cost was estimated to be $4.3 billion, and the completion date was 2011.
- FY 2013 budget request: $690 million. Total estimated cost is currently $13 billion with no firm completion date.
- Risk – DOE has accepted the risk of "small explosions" during operation of the Waste Treatment Plant, potentially wasting billions of taxpayer dollars on a plant that may not be able to complete its mission.

Chemistry & Metallurgy Research Replacement Project

After more than a decade of controversy, around a quarter-billion dollars in design work, and cost estimates approaching ten times the original forecast, the Obama Administration has "deferred" construction of the Chemistry and Metallurgy Research Replacement "Nuclear Facility" (CMRR-NF) for at least five years. The project was to have been constructed at the Los Alamos National Laboratory (LANL) in New Mexico.

Why has it been Deferred?

The National Nuclear Security Administration (NNSA) has determined that it does not need the new CMRR-NF to sustain its mission. If built, the Nuclear Facility's main mission would be to support expanded production of plutonium pits – the fissile cores of nuclear weapons. The project has three stages. Phase A and Phase B are nearly complete with construction of light laboratories and offices, as well as installation of special equipment. Phase C, design and construction of the "Nuclear Facility," is now deferred.

The NNSA states in its FY 2013 Congressional Budget Request that it "has determined, in consultation with the national laboratories, that existing infrastructure in the nuclear complex has the inherent capacity to provide adequate support for these missions... Studies are ongoing to determine long-term requirements. NNSA will maximize use of existing facilities and relocate some nuclear materials." The already built Phase A of the CMRR Project, the 185,000 square foot Radiological Laboratory/Utility/Office Building, along with LANL's existing plutonium pit production facility is more than sufficient to meet stockpile needs.

The CMRR-NF project also failed to provide good jobs for New Mexicans. NNSA's own Environmental Impact Statement (EIS) determined that the facility would not create a single new permanent job in New Mexico. The EIS did predict an average of 420 temporary construction jobs over nine years. The EIS also said those temporary jobs "would have little or no noticeable impact on the socioeconomic conditions" of the impacted four-county area. Instead of expanding nuclear weapons programs, funding for comprehensive cleanup of the Lab's immense inventory of buried radioactive and hazardous wastes could create more than a thousand well-paid jobs. Such environmental programs would also eliminate the threat to precious groundwater and the Rio Grande.

What was the Problem?

The CMRR-NF was planned as a replacement for the 60-year-old Chemistry and Metallurgy Research (CMR) Building. However, several problems have complicated the project's advancement. First, scientists have recognized that the seismic hazards are far greater than previously understood in the geologically complex Los Alamos area. As a result of changing nuclear weapons policy, the new CMRR-NF was designed to be much larger than now needed. Expanded capabilities for more nuclear weapons production across the complex are simply unnecessary. Moreover, they would likely have a negative impact on the global nonproliferation regime, encouraging other nations to expand or develop their own nuclear weapons capabilities.

Original Proposal

Purpose/Justification: The CMRR was designed to replace the existing Chemistry and Metallurgy Research (CMR) Building, a sixty-year-old nuclear facility that is "vital to fulfill several critical LANL missions, including but not limited to, pit rebuild, pit surveillance and pit certification." Plutonium pits are the fissile "triggers" capable of nuclear criticality that initiate the destruction of modern thermonuclear weapons.

Original Cost: The FY 2004 Preliminary Full Total Estimated Cost Projection adjusted for inflation was under $700 million.

Original Completion Date: 2010. The FY 2004 projections called for operations in the new CMRR Nuclear Facility to start in the first quarter of FY 2011, because operations in the old CMR would be impossible past 2010.

Current Status

Purpose/justification: "Deferred" for at least five years while the Uranium Processing Facility near Oak Ridge, TN is being built. In reality this probably means the termination of the CMRR-Nuclear Facility.

Current Cost: The "Details of Project Cost Estimate" table in NNSA's FY 2012 budget request put CMRR's projected cost at $5.86 billion, including design and contingencies--approaching almost ten times the original forecast. But even that figure was still marked as "to be determined."

Current Completion Date: There is now no scheduled completion date. Deferral of the CMRR-NF for at least five years likely means its termination.

Is There an Alternative?

Fortunately, NNSA now appears to agree with relocating missions from the old CMR Building to the newly built Rad Lab/Office building and LANL's existing plutonium pit production facility. The CMRR-Nuclear Facility does not need to be built. The old CMR Building should be decontaminated and demolished.

RECOMMENDATIONS:

- Congress should support the Obama Administration's FY 2013 request for zero funding for the CMRR-NF. No further funding, including funds for design work, should be committed to the project.
- A study of LANL's plutonium infrastructure including existing and future capability needs should be required.
- The existing CMR Building should be decontaminated and demolished, which would result in long-term security cost savings.
- Adequate funding should be provided for comprehensive cleanup at Los Alamos Lab, which could create more than a thousand new jobs, in contrast to shrinking nuclear weapons programs.

Uranium Processing Facility

The Department of Energy (DOE) National Nuclear Security Administration (NNSA) plans to expand Highly Enriched Uranium (HEU) operations in Oak Ridge, Tennessee by building a new production plant. The Uranium Processing Facility (UPF) will manufacture components for nuclear warheads. It will have a production capacity of 80 warheads per year. Since the project was first announced in 2005, the need and urgency of the facility have diminished significantly. At the same time, however, the facility's size and projected cost have ballooned.

Original Proposal

Purpose/Justification: The original justification for the UPF was straightforward. NNSA said in 2008 that the facility was "essential to its ability to meet national security requirements regarding the nation's nuclear deterrent," and "needed for NNSA to maintain its basic nuclear weapons capabilities."

Original Cost: In 2005, DOE provided a cost estimate range for the UPF of $600 million to $1.5 billion.

Original Completion Date: The original projected completion date for the UPF was 2018.

Current Status

Purpose/Justification: By May 2010, DOE's Stockpile Stewardship Plan was walking back the statement of need, saying the UPF is needed to avoid "the risks of intermittent shutdown associated with current facilities." In addition to manufacturing uranium "secondaries" for nuclear warheads, UPF would be the primary location for dismantling secondaries from retired weapons.

Current Cost: The FY2013 request is $340 million. The FY12 appropriation for UPF was $160 million.

Out-year Costs: The current estimated price tag for the UPF is now between $4.2 and $7.5 billion. The increase from the original low-end budget forecast to the current high-end figure exceeds 1000%. More than $600 million has already been expended.

Current Operations Date: The current estimate for the UPF to come on-line is 2024. In the interim, more than $100 million will be spent to bring existing facilities, which continue to meet mission requirements, up to current environmental and safety standards. New equipment once slated for the UPF is being procured and installed in existing buildings.

What is the Problem?

In 2011, NNSA released a Final Site-Wide Environmental Impact Statement, which said that it could meet mission requirements with a No-Net-Production sized UPF and a warhead capacity of 10 per year. NNSA rejected that option, as well as the Upgrade-In-Place option that would modernize existing facilities. Instead, it chose to proceed with a Supersized UPF that has 700% excess production capacity (80 warheads per year; enough to replace the entire US stockpile every 20 years).

Meanwhile, NNSA is modernizing existing facilities. News reports document $76 million in upgrades to technology and infrastructure in the last fiscal year. The FY 2012 budget includes tens of millions of dollars for additional equipment upgrades and replacements. In other words, UPF will be modernized twice, upgrading existing facilities and building the Supersized, Superpriced UPF.

The United States cannot afford the UPF financially or politically. With a price tag of $7.5 billion, it would be the most expensive bomb plant in history. With no new nuclear warheads on the drawing board and demands for Life Extension Programs diminishing, the UPF is fast becoming a project without a need. The cost savings, security footprint reductions, and manufacturing efficiencies advertised as benefits of the UPF can all be realized in existing facilities if they are consolidated, downsized and upgraded—at a fraction of the cost.

Is There an Alternative?

The alternative to building an expensive new facility is to consolidate and downsize operations required for stockpile stewardship in existing facilities, upgrading where necessary to meet environmental and safety requirements. The latter task is already being done at the Oak Ridge Y12 facility.

In addition, the infrastructure requirements for a growing mission at Y12—the dismantlement of nuclear warheads—should be analyzedA dedicated dismantlement facility, which incorporates new technologies, should be considered to address the 15-year backlog of thermonuclear secondaries awaiting dismantlement at Y12.

RECOMMENDATIONS:

- Congress should reject accelerated funding for the UPF and insist on a clear system for financial accountability before it authorizes anyconstruction funds. This should include cost estimates with a 90% confidence level based on 90% design completion.
- Congress and/or the Obama Administration should commission an independent evaluation of the need for Life Extension Projects for Highly Enriched Uranium secondaries similar to the JASON study on long-term reliability of plutonium pits.
- Production facilities and operations at Y12 should be aligned with actual mission needs. Current operations can be right-sized (10 warheads per year), and the cost of consolidated operations in existing facilities should be fully analyzed.
- Plans for the future of uranium operations at Y12 should reflect the nation's current nuclear policy and a realistic vision of the future. That includes a declining need for production capacity and an increasing demand for dismantlement.
- DOE should undertake a study of the capacity and projected need for existing facilities at Oak Ridge's Y12 complex to determine whether a dedicated dismantlement facility is advisable.

National Ignition Facility

Ten years after its originally scheduled completion and with a cost overrun of around $6 billion, the National Ignition Facility (NIF) located at Lawrence Livermore National Laboratory (LLNL) in California has not achieved its goals. It has neither attained thermonuclear ignition nor produced more energy output than was put in.

Original Proposal

Purpose/Justification: According to the LLNL Institutional Plan, NIF's mission was three-fold. It would: (1) push the envelope on nuclear weapons design; (2) provide additional capability for nuclear weapon effects tests; and (3) develop inertial fusion energy. The plan states that these applications require achieving ignition and propagating thermonuclear fusion burn, or gain.

Original Cost: NIF was originally supposed to cost $677 million. NIF initially went to Congress with a $1 billion budget. In 1998, NIF's costs were pegged at $1.7 billion. In 1999, a General Accounting Office investigation estimated NIF's construction and related costs at $4 billion. In 2000, the Department of Energy (DOE) "rebaselined" NIF.

Original Completion Date: NIF was to be completed in 2002. A 1996 Environmental Impact Statement stated NIF would be built by 2003. After the "rebaseline" in 2000, that date shifted to 2008. In 2009, NIF construction was declared "complete." NIF was to have achieved "ignition" one to two years after the completion of construction. Following the "rebaseline" Congress was promised ignition would occur in Fiscal Year 2010. It has still not occurred.

Current Status

Purpose/Justification: NIF has been sold as all things to all people. To environmentally oriented audiences, NIF is promoted as a green energy machine, although its fuel and waste products are radioactive. To Congress, it is sold as a necessary stockpile stewardship tool, although the former head of DOE's stockpile surveillance and evaluation program, Robert Peurifoy, called it "worthless" for that task.

Current Cost: The FY2013 request is $460 million for “inertial confinement fusion,” which mostly goes to NIF.
Out-year Costs: Construction and related expenses for NIF are conservatively estimated at $7 billion. NIF is costing an additional $400 million per year to operate.

Current Completion Date: NIF was declared "complete" in 2009, yet some items are still being developed for use in the NIF project. Ignition targets and other key components have serious, unresolved technical problems. There is no longer a specified date for achieving ignition. NNSA administrator Tom D'Agostino testified before Congress that the agency would run a "credible ignition experiment" by the end of fiscal year 2010. On October 6, 2010, NNSA disclosed that the energy of that experiment was at 1 megajoule, not the 1.8 megajoules that NIF was designed to deliver. The "target" capsule was filled with a mix of "tritium, hydrogen and deuterium" --not the appropriate fuel for ignition. Now, the FY 2013 budget request fully walks away from any promise of ignition at NIF, citing the "physics uncertainties... associated with ignition."

What is the Problem?

As a "new nuclear weapons" design tool, NIF takes the nation in a dangerous direction. According to many nuclear weapons experts, NIF is neither well suited nor needed to maintain the safety and reliability of the existing nuclear weapons stockpile. Instead of attracting talent to LLNL, top-notch employees have fled NIF due in part to its overselling. As a scientific achievement, NIF's likelihood of achieving "ignition" and "gain" (more energy out than was put in) is becoming vanishingly small.

At an estimated $400 million in annual operating costs, NIF continues to pose a budget-busting risk. NNSA's recent decision to use plutonium in NIF experiments along with fusion fuel increases its nuclear proliferation risks dramatically. Non-proliferation dangers will exist as long as NIF continues as a NNSA nuclear weapons activity, with 80% of its experiments classified. NIF also presents a health and environmental threat to workers and the local community. According to the latest LLNL Site-wide Environmental Impact Statement, the primary impacts of plutonium and other fissile materials use at NIF will be to increase its output of nuclear waste by 50% and worker exposure to radiation about three-fold. In an addendum to that document, LLNL approved the use of larger radioactive fuel capsules and blasts in NIF, potentially increasing its tritium emissions and "skyshine" radiation caused by escaping neutrons.

Is There an Alternative?

Since NIF is not necessary for any of its alleged uses, a number of options exist. One alternative is to take NIF out of the weapons programs and place it in DOE's Office of Science or another agency, forego classified experiments and assure a modest, but not excessive, operating budget. That way, any utility NIF may have for earth sciences, astrophysics or other disciplines can be accomplished without spending hundreds of millions unnecessarily each year and risking environmental, health and proliferation dangers. Since no amount of money or change in management is likely to make NIF achieve ignition, another option would be to simply pull the plug thereby ensuring that Congress does not continue to throw away good money after bad.

RECOMMENDATIONS:

- Congress should request from NNSA an accounting of the costs of using plutonium and other fissile materials in NIF, and then de-fund those activities.
- The Administration and Congress need to reevaluate the overall NIF project to reduce or eliminate its excessive risks and costs.
- Congress should pass legislation removing NIF from NNSA control.

W78 Warhead Life Extension Program

The service lives of U.S. nuclear weapons are being extended for three decades or more through Life Extension Programs (LEPs). The Department of Energy's semi-autonomous National Nuclear Security Administration (NNSA) is planning a LEP for the W78 warhead. Some 250 W78 warheads are currently deployed on Minuteman III intercontinental ballistic missiles (ICBM). However, the U.S. has already replaced approximately 200 Minuteman III warheads with the W87 warhead, which has already gone through a LEP adding more modern safety features than the W78. There are approximately 550 W87s in the stockpile. That is more than enough for the entire Minuteman fleet of 420 as planned under the New Strategic Arms Reduction Treaty. The W78 LEP would needlessly replace an already refurbished W87 warhead at great cost to taxpayers.

Original Proposal

Purpose/Justification: The U.S. Nuclear Posture Review released in April 2010 recommended "initiating a LEP for the W78. The plan included the possibility of using the resulting warhead on Sea-Launched Ballistic Missiles to reduce the number of warhead types." A feasibility study is currently underway. NNSA is considering using that LEP to create a new warhead that could substitute for both the land-based ICBM W78 and the submarine-launched ballistic missile W88 warhead.

Original Cost: NNSA spent $56 million each year on the W78 feasibility study in FY 2011 and FY 2012.

Original Completion Date: The completion date for the initial feasibility study has slipped to September 2013. The W78 LEP has no fixed completion date, but would likely take more than 20 years. The first warhead refurbishment is scheduled for completion in 2023.

Current Status

Purpose/Justification: According to NNSA's FY 2013 Congressional Budget Request, in addition to using the refurbished W78 on land-based ICBMs, the agency will continue to "explore the path forward for the W78 life extension study that includes the possibility of using the resulting warhead also on the Submarine Launch Ballistic Missile (SLBM) to reduce the number of warheads."

Current Cost: The FY2013 request is $76.6 million

Out-year Costs: The W78 LEP is in its earliest phases, and its long-term budget is not yet clear. The FY 2012 Stockpile Stewardship and Management Plan estimates spending approaching $5 billion through 2031. A design that combines the W78 and W88 warheads would dramatically escalate costs. The NNSA FY2013 budget request failed to list budget estimates to 2017 for nuclear weapons research and production programs, violating explicit Congressional mandates.

Current Completion Date: NNSA's FY 2012 Stockpile Stewardship and Management Plan estimates that the W78 LEP feasibility study will be completed by October 2013. Refurbishment is scheduled to begin in 2023. It will not be completed before 2035.

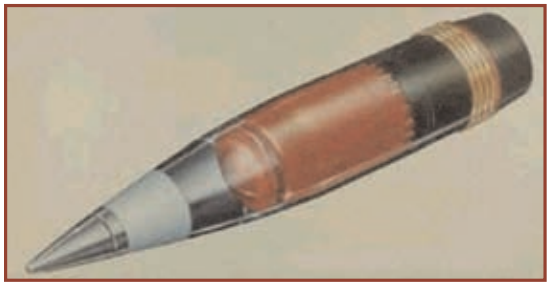
What is the Problem?

There are many risks. Instead of merely extending the lifespan of a tested weapon, the W78 LEP potentially combines two warheads into a third, essentially new, design. This joint warhead option raises important questions over how far warhead designs can stray from tested specifications before confidence in the safety and reliability of the nuclear weapons stockpile erodes.

Costs will surely mushroom with a combined W78/W88 LEP. Another concern is the inevitable environmental contamination from continuing nuclear weapons production. Moreover, because weapons assembly and disassembly use the same facilities, LEP refurbishments bottleneck dismantlement of bombs and warheads slated for retirement. Finally, radically changing nuclear weapons may erode confidence in their reliability. That would increase pressures to return to full-scale testing, with seriously adverse international consequences.

Is There an Alternative?

A true alternative would be to redirect NNSA's Stockpile Stewardship Program toward an engineering-based surveillance and maintenance program that seeks to preserve the tested pedigree of U.S. nuclear weapons. "Curatorship" would maintain existing warheads far into the future. In contrast, the W78 LEP could result in warheads that progressively diverge from their test-certification and cost taxpayers far more.



Instead, the focus should be on tried-and-true, nuts-and-bolts surveillance and maintenance programs, which seek to avoid changes to previously tested designs. The quest for greater "surety" to make nuclear warheads impervious to unauthorized use should not become the excuse for rebuilding the nuclear weapons complex in order to fabricate essentially new weapons. Resulting savings should be redirected toward genuine stockpile maintenance and developing necessary nonproliferation technologies.

RECOMMENDATIONS:

- Congress should require that all proposed LEPs be subject to independent expert review to determine if proposed changes are necessary and what potential implications they may have. A combined W78/W88 warhead program would undermine the goal of a well-tested, reliable stockpile.
- Retire the W78, in favor of the more modern W87 that is already available for Minuteman III missiles.
- Congress should support stockpile safety and reliability through surveillance and replacement of limited life components as needed. "Curatorship" is the prudent technical, fiscal and policy approach to reducing nuclear dangers.

B61-12 Warhead Life Extension Program

Modifications to the B61 nuclear bomb are planned under a Department of Energy (DOE) Life Extension Program (LEP). Yet the mission for which the bombs are designed, deployment in NATO countries, may no longer exist by the time production is complete. The estimated cost of the B61-12 LEP has risen since last year while its production date has slipped two years. The aircraft on which the B61-12 bombs are supposed to be carried is seriously over budget and behind schedule.

Original Proposal

Purpose/Justification: The stated purposes of the LEP are: extend the life of this bomb type another 30 years or more; develop new design and reuse components inside the bomb; and change the components and technology mating the bomb to its delivery vehicle

Original Cost: Congress appropriated $32.5 million in 2009 for a Phase2/2A study. Another $32.5 million was "reprogrammed" into the B61-12 LEP in 2010.According to the National Nuclear Security Administration (NNSA) Stockpile Stewardship and Management Plan, the B61-12 LEP design and production costs will total $4 billion. More recent estimates top $5 billion. All estimates exclude underlying infrastructure costs that support LEPs.

Original Completion Date: The first new B61-12 was scheduled for production in 2017. However, the FY2013 NNSA budget request delays the first production unit by two years, to 2019.

Current Status

Purpose/Justification: The mission for the B61-12 LEP includes: developing new design components and technologies; redesigning the bomb's "primary" (core) to demonstrate the feasibility of plutonium pit reuse from different versions of the bomb; reusing or remanufacturing the bomb's "secondary" (canned subassembly/thermonuclear component); and designing and installing enhanced safety and security technology. As costs rise, the scope of the LEP is reportedly shrinking to preclude placing new “surety” technology into the bomb’s core, changing its geometry.

Current Cost: NNSA’s FY2013 budget requests $369 million, a 66% increase over the 2012 appropriation. The B61-12 LEP’s out-year costs are missing from the NNSA budget request, despite a Congressional requirement that they be included.

Current Completion Date: B61-12 production was slated to end in 2022 – 2023. With the delay of the first production unit, that date will likely slip two years.

What is the Problem?

There are at least four fundamental problems. First, U.S. taxpayers are being asked to spend billions to create a new B61-12 when its principal mission is deployment in NATO countries, some of which have already called for its removal. NATO is reevaluating its overall policy regarding nuclear deployments. Moreover, the B61-12 is being redesigned to fit on the new F-35 "Joint Strike Fighter" and will no longer fit on planes NATO countries use to carry current B61s.

Second, the scope of the B61-12 LEP far exceeds refurbishment of components necessary to maintain the bomb's safety and reliability. The B61-12 LEP strays into a gray area between extending the weapon's life, the original purpose of LEPs, and designing a new nuclear weapon. After Congress rejected funding for the Reliable Replacement Warhead (RRW) Program, NNSA proposed an "expanded" LEP for the B61. The resulting B61-12 appears similar to what would have been the second RRW design.

Third, the B61-12 LEP is a potential budget buster. It is more than four times as expensive per weapon as any previous LEP. Its per unit cost may climb even higher in a cost study due soon.

There is an additional risk that the B61-12 is being designed for a mission that may be substantially reduced or nonexistent by the time it is ready for deployment. Further, the F-35 "Joint Strike Fighter" is experiencing cost and schedule challenges. The multiple modifications being sought for the B61-12 may actually increase uncertainty regarding its reliability in an environment where a full-scale "proof test" in Nevada is neither possible nor desirable.

Is There an Alternative?

A better alternative would be to redirect NNSA's Stockpile Stewardship Program toward "curatorship," an engineering-based surveillance and maintenance program that seeks to preserve the tested reliability of U.S. nuclear weapons. Multiple studies by independent experts have concluded that U.S. nuclear weapons are far more reliable than previously thought. In contrast, the B61-12 proposed by NNSA will result in bombs that progressively diverge from their test-certified pedigree and cost taxpayers far more dollars for uncertain benefits. The number of warheads to be life extended could also be reduced to reflect the B-61's shrinking mission.

RECOMMENDATIONS:

- Congress should halt FY 2013 funding for the B61 Life Extension Program because there are serious unanswered questions regarding its scope, need and cost. The yet-to-be-completed Phase 2/2A cost study may reveal increased costs. A Congressionally mandated JASON group analysis of the B61 LEP has not occurred. As specified by Congress, the JASONs will analyze "the extent to which the nuclear scope is needed to enhance the safety, security, and maintainability of a refurbished B61 and whether changes to the weapons will affect its long term safety, security, reliability and military characteristics."
- Congress should suspend funding the B61-12 LEP because its mission is in flux. Changes in NATO's emerging nuclear policy may constrain or eliminate the B61-12 mission before the LEP's completion in 12 years.
- Congress should limit the scope of all Life Extension Programs to refurbishment of components necessary to maintain existing safety and reliability. Sticking as closely as possible to fully-tested designs and remanufacturing parts will ensure the arsenal

Mixed Oxide Plutonium Fuel Fabrication Facility

The U.S. must securely manage a large stockpile of weapons-grade plutonium from dismantlement of nuclear weapons. It needs to be kept out of the environment and rendered unavailable for reuse in nuclear weapons. In 2000, the U.S. entered into an agreement with Russia to eliminate surplus weapons grade plutonium. The U.S chose two parallel disposition strategies: one track to make experimental mixed oxide plutonium fuel (MOX) for use in unspecified nuclear reactors; and a cheaper, quicker, safer track to immobilize plutonium in high-level nuclear waste. The U.S. Department of Energy (DOE) subsequently dropped the immobilization option but has spent billions building a MOX plant.

Original Proposal

Purpose/Justification: The Mixed Oxide Fuel Fabrication Facility (MFFF), under construction at the Savannah River Site (SRS), was part of the "dual track" for plutonium management. DOE's search for utilities to use weapons-grade MOX in commercial reactors was a key part of the unprecedented MOX program. Duke Energy provided one reactor for MOX "lead test assemblies" in 2005, but that experiment was terminated in 2008 due to fuel assembly warping.

Original Cost: In FY 2004, the cost estimate for the MOX plant was $1.6 billion.

Original Completion Date: In FY2003, DOE estimated that construction would be finished in FY2007. Under the terms of the plutonium disposition agreement with Russia, both countries were to begin operating MOX facilities in 2007.

Current Status

Purpose/Justification: In 2002, DOE chose the MOX strategy over immobilization in high-level waste. MOX plant construction did not begin until August 2007. Now over 50% complete, about $3 billion has been spent on construction alone. Duke's test of MOX fuel failed, and the company subsequently pulled out of the program. With no utilities contracted to use MOX, DOE is currently focused on reactors owned by the Tennessee Valley Authority (TVA). These reactors are Browns Ferry, boiling water reactors with the same General Electric Mark 1 design that melted down in Japan last year, and Sequoyah, which has a thinner containment dome than other reactors.

Current Cost: FY2013 Request: $388 million for MFFF construction and $499 million for related facilities and administrative costs.

Current Completion Date: In mid-January 2011, DOE said that construction will be completed in 2012. DOE now claims that the MOX plant will achieve "cold start-up operation" in late 2013. However, DOE has not confirmed any reactors to use MOX fuel and refuses to produce a schedule for MOX plant operation. Because the NRC will likely require four to six years of MOX testing in a reactor, followed by fuel performance evaluation and licensing, the MOX plant is at grave risk of sitting idle with no utility able to use its product.

What is the Problem?

The MOX program continues to receive a disproportionate share of nonproliferation funding. Yet, the program may never become operational. The license faces legal challenges, the initial feedstock has not been clearly identified, no reactors have been contracted to use MOX fuel, and Russia has dropped out of a parallel MOX program. Technical problems in reactor operation and spent fuel storage associated with using MOX make it uncertain whether TVA or any utility will use it.

Introduction of weapons-grade plutonium into commerce as MOX sends the wrong signal to a world concerned about nuclear proliferation. MOX use by the U.S. will encourage other countries to pursue reprocessing and using plutonium in their reactors, greatly increasing proliferation risks. Simultaneously, budgets for the Global Threat Reduction Initiative and programs that prevent fissile materials smuggling are being slashed in order to fund MOX construction.

Is There an Alternative?

DOE must prepare an analysis of disposing of plutonium as waste, including via immobilization. A program to make ceramic pucks of the plutonium, then place the pucks in canisters filled with vitrified waste at SRS, remains one alternative to the costly and dangerous MOX. As the U.S. and Russian plutonium disposition programs have been decoupled, there is nothing restraining the U.S from treating plutonium as waste. The technical basis for reviving plutonium immobilization has already been demonstrated by mixing contaminated plutonium directly into vitrified high level waste at SRS.

RECOMMENDATIONS:

- Congress should halt all funding for the MOX project, redirecting it to other nonproliferation projects.
- DOE should be directed to reinstate the program to dispose of plutonium as waste.
- The Government Accountability Office (GAO) must be requested by Congress to conduct a review of the MOX program and investigate plutonium disposal options.

Waste Treatment Plant

In southeastern Washington State, the U.S. Department of Energy (DOE) is building the world's largest radioactive waste treatment plant to process and stabilize a portion of the 56 million gallons of radioactive and chemical waste currently stored at the Hanford Site. Although DOE stopped producing nuclear material at Hanford in 1989, millions of gallons of high-level radioactive waste from reprocessing still remain in aging, underground waste tanks. Most tanks are beyond their design life, and many have leaked waste into the soil. The project is poorly designed, far over-budget and more than a decade behind schedule.

Original Proposal

Purpose/Justification: The Waste Treatment Plant (WTP) is intended to separate Hanford's waste into high-level and low-activity fractions, then immobilize in a glass form all of the high-level fraction and about half of the low-activity fraction for permanent disposal.

Original Cost: $4.3 billion

Original Completion Date: 2009, with operations to begin in 2011

Current Status

Purpose/Justification: Unchanged

Current Cost: the FY2013 budget request seeks $690 million for the Waste Treatment Plant and $482 million for tank waste stabilization.

Current Completion Date: Unknown

What is the Problem?

For over a decade, the WTP has faced serious concerns about the chemical engineering and safety designs, including the potential for buildup of explosive gasses. Repeated reviews have urged large-scale testing before proceeding with construction. Senior engineers assigned to the project have raised questions. One of them, Research and Technology Manager Walt Tamosaitis, was removed from his position after identifying some 50 such issues. The current Manager for Environmental and Nuclear Safety also filed a whistleblower complaint and went public with her concerns. The WTP is now under intense scrutiny by the Defense Nuclear Facilities Safety Board, an oversight agency appointed by the President.

There are two main risks associated with this facility: safety and effectiveness/efficiency. The WTP will handle very large inventories of chemicals mixed with extremely radioactive materials in a process involving high heat and pressure. Risks include a possible hydrogen gas fire or explosion, or a nuclear criticality. Rather than redesign or conduct engineering tests to ensure that designs will work as hoped, DOE has accepted the risk of "small explosions." Meanwhile, technical concerns are being downplayed or ignored, and technical experts are being suppressed and harassed.

Even if there were no large-scale release, a malfunction in the facility could limit the amount of material that could be treated. In such a scenario, taxpayers would lose the billions of dollars invested in the project and the ability to treat the high-level nuclear waste in tanks. These tanks, called "underground Chernobyls" by Washington's governor, are beyond their design lives. About a third have already leaked and contaminated groundwater.

Is There an Alternative?

There currently is no viable alternative to vitrification. The goal must be to remove the waste from the highest risk Single Shell Tanks before more leaks occur and to enable cleanup of the massive contamination under tank farms. Therefore, one realistic alternative is to build a set of Double Shell Tanks, which could be used to mix and stage waste entering the vitrification plant. High-level waste could then be removed from the riskiest tanks instead of waiting for the WTP to become operational. This would allow time to test for safety and finish design before proceeding with construction. The cost for new tanks would likely be $250 million.

Congress could require safety and engineering tests as well as external design review before allowing final installation. This would parallel a prior Congressional mandate that design move ahead of construction. Other alternatives include replacing the managers and contractors in charge of this project. In 2006, the U.S. Government Accountability Office stated that, "There are three main causes for the increases in the project's cost and completion date: (1) the contractor's performance shortcomings in developing project estimates and implementing nuclear safety requirements, (2) DOE management problems, including inadequate oversight of the contractor's performance, and (3) technical challenges that have been more difficult than expected to address."

Independent oversight for the balance of the WTP project is sorely needed. Currently, the contractor, Bechtel, is both the design agent and the design authority, which approves the company's own work. The culture of reprisals against employees who raise safety issues must terminate.

RECOMMENDATIONS:

- Work on the pretreatment part of the facility should stop now. It is clear that the design is not satisfactory, yet construction and design are continuing. Outside experts need to be engaged to figure out what steps are necessary for the plant to move ahead.
- Congress or the Administration should replace the Department of Energy as the regulator for the Waste Treatment Plant. A different federal agency should be empowered to take on the role of certifying the WTP for operation. This could be the Nuclear Regulatory Commission, an expanded Defense Nuclear Facilities Safety Board, or another entity. The contractor should not hold the role of both design authority and design agent.
- Require DOE to build new tanks to allow waste to be removed from the older, leaky Single Shell Tanks and enable cleanup of the contamination under tanks to begin without waiting for the WTP to become operational. Use vitrification plant program contingency funds for construction.
- Congress should strengthen laws regarding whistleblower protection and mandate the establishment of a Safety Conscious Work Environment.

Environmental Cleanup: the Big Picture 2012

Decades of U.S. nuclear weapons research, testing, and production have resulted in dozens of Department of Energy (DOE) sites contaminated with massive amounts of radioactive and hazardous wastes. Cleaning up this legacy is the nation's most costly and complicated environmental project. The task is destined to continue for many decades. While progress has been made during the past 20 years, contamination endangers some of the nation's most important water resources, including the Columbia River, Snake River aquifer, and Savannah River. Millions of people are threatened because they live near the sites, use those water resources, or reside along major transportation routes where waste is moved to storage and disposal sites.

Cleaning Up the Nuclear Weapons Legacy

Legal agreements with states and the Environmental Protection Agency (EPA) include milestones by which cleanup activities are to be accomplished. Missing those milestones can allow contamination to spread, increases costs, results in fines and penalties, and further erodes public confidence in government and cleanup contractors.

Hanford (WA), Savannah River Site (SC), and the Idaho National Lab (ID) produced nuclear fuel that was reprocessed to extract uranium and plutonium for nuclear weapons production. Those operations generated more than 90 million gallons of liquids, sludges and other high-level waste (HLW), as well as other wastes, while emitting large volumes of radioactivity into the air, groundwater, and soil. Production of highly enriched uranium at Oak Ridge (TN), Portsmouth (OH), and Paducah (KY) also emitted large amounts of radioactivity. Left behind were more than 57,600 cylinders, containing more than 700,000 metric tons of depleted uranium hexafluoride. Plutonium production and manufacturing tens of thousands of plutonium pits, primarily at the Rocky Flats Plant near Denver from 1952 to 1989, created more than 150,000 cubic meters of transuranic (TRU) waste. The Nevada Test Site was contaminated by more than 200 above-ground nuclear weapons tests and more than 700 underground tests.

The Fiscal Year 2013 Budget

The FY 2013 Budget Request estimates that cleanup could stretch to at least 2038 for six sites – Nevada Test Site, Savannah River, Idaho, Paducah, Portsmouth, – and as long as 2062 for Hanford. Other major sites, including Oak Ridge, Los Alamo (NM), and Livermore (CA) have missed cleanup milestones. Yet, they continue weapons production activities, which create more waste. The Budget Request estimates that it will cost from $174 billion to $209 billion more for cleanup of those sites. That amount is in addition to the approximately $100 billion spent during the past 15 years and about $175 million needed every year to cover costs at Legacy Management sites declared "closed."

Despite the massive remaining costs and decades of continuing cleanup, the $5.65 billion Budget Request does not provide adequate funding to meet legal requirements and prevent cleanup from taking years longer. Nor does it disclose which milestones will be missed and therefore need to be "re-negotiated." For example, the Los Alamos Consent Order requires cleanup to be completed in 2015, yet the Budget Request will result in delays of at least four years.

Transuranic (Plutonium-contaminated) Waste Disposal

In 1979, Congress authorized the Waste Isolation Pilot Plant (WIPP) in salt beds of southeastern New Mexico to be the disposal site for defense TRU waste, but provided for no Nuclear Regulatory Commission licensing or state regulation. The 1992 WIPP Land Withdrawal Act provided that the U.S. Environmental Protection Agency and New Mexico Environment Department would regulate WIPP's activities. That law – and numerous promises made to New Mexicans - also prohibits all commercial waste, including spent nuclear fuel, and defense high-level waste. The law authorizes WIPP to dispose of up to 175,564 cubic meters of contact-handled and more radioactive remote-handled waste. As of January 1, 2012, almost 80,000 cubic meters of TRU waste has been emplaced at WIPP. But if production of plutonium pits continues after about 2030, when WIPP is scheduled to close, TRU waste would have to be disposed in another repository.

With the termination of the proposed Yucca Mountain repository and growing pressure from the nuclear industry, some are targeting WIPP as a "quick solution" for defense high-level waste or commercial spent fuel. WIPP (and salt) are not technically suited for such thermally hot waste. The facilities at WIPP could not safely handle it either. Attempts to expand the mission of WIPP are strongly opposed by New Mexicans and undermine the credibility of federal government promises. People living in the shadows of U.S. nuclear weapons sites do not want more broken promises at any DOE site.

Defense High-Level Waste Storage and Disposal

The Nuclear Waste Policy Act of 1982 provided that commercial spent fuel and HLW required geologic disposal. Whether commercial and defense wastes would be disposed in the same or separate repositories was left to the president. In 1985, President Reagan determined that a defense-only repository was not required. Thus, ten percent of the 70,000 metric ton capacity of the proposed Yucca Mountain repository was set aside for HLW.

Before it can ever be transported or disposed, HLW must be processed and solidified. Such processing is underway at INL and Savannah River, and the Waste Treatment Plant has been under construction at Hanford. The large volumes of HLW at Savannah River and Hanford will take many years to process.

Since there will not be a spent fuel/HLW repository for decades, the public, tribes, and states must be involved in on-site storage decisions. A new disposal program must be developed that includes technically sound standards; a credible organization to develop and operate facilities and transport waste; independent, stringent regulation; and robust public, tribal, and state involvement.

Weapons and Nonproliferation: the Big Picture 2012

The Department of Energy nuclear weapons design and production complex consists of eight sites. The National Nuclear Security Administration (NNSA), which runs the complex, is planning to build three new facilities that will significantly expand U.S. warhead production capacity. These expensive plans run counter to federal budget realities and U.S. treaty obligations to reduce the nuclear threat. Expanding nuclear weapons design and production capabilities would also undermine the nation's ability to lead on nonproliferation issues.

At $7.6 billion, the FY 2013 budget request for nuclear weapons activities is 5% higher than FY 2012 and 10% more than the FY 2011 level. Future funding levels are difficult to pin down because NNSA failed to comply with a legal requirement to include at least four years of spending projections with its budget request. Congress should not fund NNSA's nuclear weapons programs until the agency provides full cost projections through FY 2017.

Building an Unnecessary, Ultra-expensive New Nuclear Weapons Complex

The Chemistry and Metallurgy Research Replacement (CMRR) Nuclear Facility at Los Alamos National Laboratory was once deemed the most important new weapons plant. It would have increased U.S. capacity to produce plutonium pits, the core of modern nuclear weapons, to 125 a year. It has now been deferred for five years.

NNSA contends that fiscal constraints and the capacity to complete plutonium missions using existing facilities make building the Uranium Processing Facility (UPF) at Oak Ridge a higher priority. Proposed spending for the UPF in FY 2013 is $340 million, a 112% hike from last year, leading to growing questions about its mission and size. The total project is estimated to cost between $4.2 and $7.5 billion.

The third new facility is a replacement for the aging, contaminated Kansas City Plant (KCP), which manufactures non-nuclear components for weapons. Through a controversial NNSA contracting strategy, the local municipality will own the new KCP and lease it to a private firm to operate. That means U.S. taxpayers have taken on a long-term financial obligation for a facility whose costs are, in part, "off the books." The Government Services Administration estimates the value of the 20-year lease at $1.23 billion.

The U.S. is also pursuing major Life Extension Programs (LEPs) to upgrade nuclear weapon delivery vehicles. Despite a mission that may no longer exist, a B61-12 bomb LEP is slated for a 65% funding boost. Its lifetime projected cost exceeds $4 billion. A LEP for the W78 warhead would spend about $5 billion needlessly replacing already refurbished components.

Nonproliferation Programs

Bipartisan congressional reports have outlined the danger posed by "loose nukes" and warned that more must be done. Robust programs to secure vulnerable materials are crucial to prevent nuclear terrorism.

Nonetheless, two nuclear nonproliferation programs with proven records of success face steep cuts in the FY 2013 budget. The Global Threat Reduction Initiative, which safeguards highly enriched uranium from reactors around the world, is slated for a $31 million reduction. The budget for the International Nuclear Materials Protection and Cooperation program, which has stopped fissile materials smuggling, is $259 million lower than last year.

At the same time, the budget proposes to increase funding for Mixed Oxide Plutonium Fuel (MOX). This so-called nonproliferation program began in 2000, when the U.S. entered into an agreement with Russia to eliminate plutonium declared surplus for use in nuclear weapons. However, Russia has dropped its parallel program to use plutonium fuel in reactors. U.S. plutonium slated for inclusion in the MOX program is already being securely stored and could be disposed of through immobilization. Prioritizing funding for MOX increases proliferation risks by encouraging other nations to use plutonium in reactors.

The New START Treaty

On December 22, 2010, the U.S. Senate ratified the New START treaty, which requires both the U.S. and Russia to reduce the number of deployed strategic nuclear weapons to 1,550 by 2018. The Obama administration won some votes for ratification by promising to invest an additional $80 billion in "modernizing" the nuclear weapons complex plus $100 billion more for new nuclear weapon delivery vehicles.

A majority in Congress has backed ever-larger nuclear weapons budgets, even though the proposals are based on Cold War assumptions that no longer reflect current security problems. As the U.S. stockpile grows smaller through agreements like the New START treaty, the cost of maintaining the nuclear weapons enterprise continues to increase.

Russia has threatened to withdraw from New START because the U.S. is pursuing a missile defense system in Eastern Europe. Fortunately, the treaty remains in effect, with each nation sharing key data about its nuclear arsenal and conducting on-site visits in the other country to monitor progress.

The Comprehensive Nuclear-Test Ban Treaty (CTBT)

The CTBT would strengthen U.S. security and the global nonproliferation regime by banning all nuclear explosions. A country seeking nuclear weapons could not conduct explosions to test new warhead designs. To date, 182 nations including the U.S. have signed and 157 nations have ratified the CTBT. The U.S. is one of only eight countries that must still ratify the treaty for it to enter into force.

The U.S. Senate failed to secure a two-thirds majority to ratify the treaty in 1999. The Obama Administration has indicated it supports the treaty, but it is unlikely the CTBT will be brought back to the Senate before the 2012 election.

Monitoring provisions are already in effect through the Preparatory Commission of the Comprehensive Test Ban Treaty Organization. There are currently 337 monitoring stations around the world, making it virtually impossible for any country to conduct a secret nuclear test.

Commercial Nuclear Power and Waste: the Big Picture 2012

The United States has 104 operating commercial nuclear power plants and 11 shut-down commercial reactors. The operating plants each produce about twenty metric tons of spent fuel per year, in addition to the approximately 67,000 metric tons already generated. Virtually all of the spent fuel is stored on-site, about three-quarters in water-filled pools and the remainder in dry storage casks. There are no long-term storage or disposal facilities for that waste. The nuclear power industry estimates that existing reactors will generate another 80,000 metric tons of spent fuel by 2050. New nuclear plants would add to that total.

Government Subsidies for Nuclear Power

The nuclear industry and private investors are not willing to fund the full cost of new reactors. So any new plants require additional federal subsidies through loan guarantees, tax incentives, and continuing funding of research and development. Nuclear technology has been commercial for more than 50 years, yet it is still eligible for the same subsidies as new, alternative energy technologies. The FY 2013 Budget Request includes $770.4 million for nuclear energy. That includes more than $83.4 million for "Small Modular Reactors" (SMRs), which some tout as a safer and cheaper alternative to existing reactor technologies. Though $51 billion remain in the Title XVII loan guarantee program from previous appropriations, the Budget Request includes no expansion of the loan guarantee program. So far, the Department of Energy (DOE) has conditionally approved $8.33 billion in loan guarantees for two new reactors at Plant Vogtle in Georgia.

Despite a number of applications for new reactors before the Nuclear Regulatory Commission, only four new reactors are under construction. These projects by Southern Company and South Carolina Electric & Gas are based on the Westinghouse AP1000 design, which has not previously been built. Critics assert the AP1000 has serious design flaws. The projects are being pursued only because ratepayers in Georgia and South Carolina are billed in advance for many costs.

In response to problems with larger reactors, vendors of Small Modular Reactors, are intensifying advocacy efforts. SMRs are about one-third the size of larger units. Four or more modular units would be co-located. Though SMR vendors are seeking government support, the designs only exist on paper. Their cost advantage is purely hypothetical. SMR's do not solve the usual reactor safety and nuclear waste issues.

Hardened On-Site Storage of Spent Fuel

Nuclear waste should be stored as close to where it was generated in a manner that maximizes worker, public and environmental protection. Spent nuclear fuel that is currently located at commercial reactors can be moved out of vulnerable and overcrowded cooling pools and put into Hardened On-Site Storage (HOSS). More than 200 citizen groups from all 50 states support that approach. This technology exists and could be implemented by nuclear utilities, if mandated by federal law or regulations.

No Centralized Spent Fuel Storage

HOSS is a safer policy than building unnecessary centralized storage facilities. All proposed centralized storage facilities have failed. In 2006, the NRC issued a license to store up to 40,000 metric tons of commercial fuel on the Skull Valley Goshute Reservation in Utah. However, that site has not opened because of strong opposition from some members of the tribe, many other Utahans, and state officials. Moreover, large amounts of spent fuel have not previously been shipped around the country. Starting that process would be extremely expensive and create unnecessary environmental and human health risks for millions of people along truck or railroad routes. Nuclear waste should not be transported unless it is bound for a permanent storage site.

No Reprocessing of Spent Fuel

Reprocessing is not a solution to the challenge of nuclear waste and should not be restarted. The most difficult and expensive aspect of DOE's Environmental Management Program is cleaning up the waste from reprocessing spent fuel to extract plutonium and uranium for nuclear weapons production. The only U.S. commercial reprocessing facility at West Valley, New York, was a financial and environmental disaster that is costing U.S. and state taxpayers $10 billion or more to address over several decades.

Reprocessing is not recycling. Reprocessing creates new toxic waste streams and does not eliminate the long-term need for nuclear waste storage. Additionally, reprocessing is uneconomical. For the past 30 years, there has been no prohibition on reprocessing in the U.S. However, no license applications have been filed given environmental and economic concerns. But AREVA (the French government-owned nuclear industry) continues to push for less stringent regulations for U.S. reprocessing plants. Reprocessing facilities in other countries are heavily subsidized. The $20-billion plant in Rokkasho, Japan has not been able to start, and the Sellafield, United Kingdom plant is closing, both due to technical problems.

No Yucca Mountain

The congressional vote in 1987 to designate Yucca Mountain in Nevada as the first U.S. geologic repository for commercial spent fuel and high-level waste was a purely political decision. The site is technically flawed with earthquake faults and water intrusion. It could not meet Environmental Protection Agency disposal standards. Thus, Congress mandated that the standards be changed to allow, among other things, ground water contamination to move miles away from the site. Those standards still face legal challenges.

The large majority of Nevadans and tribes in the area, as well as state and federal officials, have long opposed Yucca Mountain. President Obama decided to cancel the facility in 2009. Congress has not provided funding for the site in the last two years. There is no funding proposed in the FY 2013 Budget Request.

A New Nuclear Waste Disposal Program

Technical suitable, publicly acceptable disposal facilities are still needed for the many tons of existing and to-be-generated spent fuel. The U.S. nuclear waste program has never had either attribute. Continuing with past policies will bring only more controversy, litigation, and failed facilities. A new program must be developed that includes: scientifically sound standards; a credible organization to develop and operate facilities and transport waste; independent, stringent regulation; and robust public, tribal, and state involvement.

Alliance for Nuclear Accountability

Celebrating 25 years of grassroots organizing

Back in the 1980s, activists and local community members began to investigate
the environmental impacts of facilities where nuclear weapons work was happening.
The U.S. Department of Energy (DOE) was in the midst of a 'shell game,'
shifting risks by moving nuclear materials and wastes from one site to another
while pitting communities against each other.
It became important to build a complex-wide perspective.
It made sense to remove the source of the problem – new weapons production and testing –
instead of just paying attention to cleaning up the messes left behind in the past.

The Alliance for Nuclear Accountability (ANA) was founded in 1987
to support the activities of grassroots groups around the country.
During the past 25 years its members have worked together as a network
to influence national policies related to nuclear weapons production, testing,
research, cleanup of contaminated sites, public safety, and worker health.
During this time, ANA's list of member organizations has expanded to include groups
working on the costs and consequences of nuclear power facilities as well.
Our 35 member organizations are listed on our website, ***ananuclear.org***.

ANA has helped to change the way that nuclear issues are framed.
Rather than allowing DOE and others to define problems as purely local,
ANA has exposed them as part of larger, widespread issues.
Groups are now able to link themselves to national campaigns against a corrupt system.
This means that local agendas are no longer defined as "NIMBY" (Not In My Backyard).
Instead, ANA members look for solutions that do not shift the burden of risks onto others.

The reasons for ANA's successes are manifold.
Paramount is its continued commitment to grassroots organizing,
taking on a system rather than piecemeal problems, and enhancing collaboration.
ANA sponsors meetings around the country and facilitates frequent conference calls
and email interaction to ensure that knowledge is shared and ideas are discussed –
so that broad consensus on strategies can emerge.

Alliance for Nuclear Accountability

A national network of organizations working to address issues of nuclear weapons production and waste cleanup

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