NNSA Misleading While Pushing Costly Nuclear Weapons Strategy

An Analysis of its FY 2015 Stockpile Stewardship and Management Plan

Executive Summary: The National Nuclear Security Administration (NNSA) recently released its FY 2015 Stockpile Stewardship and Management Plan (SSMP), in which it continues to push its "3+2 strategy" for a future nuclear weapons stockpile. NNSA proposes three "interoperable" warheads for land and submarine-based ballistic missiles, plus two air-delivered weapons, the refurbished B61-12 bomb and a new cruise missile warhead. These five heavily modified weapons would be created through Life Extension Programs for existing nuclear weapons. NNSA's introduction of its 3+2 strategy in its FY 2014 Plan caused considerable sticker shock. In its latest plan NNSA reworks the numbers to make its 3+2 strategy appear more fiscally palatable.

To begin with, NNSA's 3+2 strategy is ill-advised because:

- It is very expensive, robbing funding from needed nonproliferation, dismantlement, nuclear safety and cleanup programs.
- The U.S. Navy does not support interoperable warheads.
- Life Extension Programs (LEPs) may adversely affect stockpile reliability by introducing major changes to existing nuclear weapons that are currently known to be highly reliable.

NNSA's FY 2015 Stockpile Stewardship and Management Plan is misleading because it claims that the 3+2 strategy is "generally affordable and more executable than the program proposed in the FY 2014 SSMP." To create that impression, the new Plan:

- Delays projects and their costs, which almost always results in higher total costs.
- Lowers budget estimates while claiming undocumented improved cost modeling, when NNSA has an abysmal record in cost estimates.
- Claims $7.5 – 9.5 billion in savings for NOT doing a LEP that was never planned.
- Omits costs of directly related programs, which may exceed the costs of the LEPs themselves.
- Depicts costs as gradually tapering off, while failing to disclose that even more expensive follow-on LEPs are planned 20 years after the first round of LEPs.

According to a recent DOE Inspector General audit report, NNSA and the nuclear weapons labs have failed to diligently keep original weapon design information, which hollows out their claims of ensuring stockpile reliability. The antidote to the exorbitant, potentially harmful 3+2 strategy is genuine stewardship or "curatorship" of the nuclear weapons stockpile, which would preserve original designs as much as possible. This would free up money for needed nonproliferation, dismantlement, nuclear safety and cleanup programs, and better align with international efforts to reduce the global threat of nuclear weapons.

NNSA's case for its 3+2 strategy is hollow. Congress should direct the nuclear weapons complex to get back to the basics of ensuring stockpile safety and reliability.

Our full analysis of NNSA's FY 2015 Stockpile Stewardship and Management Plan is available at http://nukewatch.org/importantdocs/resources/FY2015-SSMP-analysis.pdf

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Analysis of NNSA's FY 2015 Stockpile Stewardship and Management Plan

Introduction

The National Nuclear Security Administration (NNSA) recently released its FY 2015 Stockpile Stewardship and Management Plan (SSMP), an annual congressionally required report on nuclear weapons programs. In this latest plan NNSA continues to push its "**3+2 strategy**" for a future stockpile composed of three "interoperable" nuclear warheads for land and submarine-based ballistic missiles, plus two air-delivered weapons, the B61-12 bomb and a new cruise missile warhead. These **heavily modified weapons** would be created through Life Extension Programs (LEPs) for existing nuclear weapons. NNSA's introduction of its 3+2 strategy in the FY 2014 Plan caused considerable sticker shock. This FY15 Plan is NNSA's revised sales pitch to Congress that attempts to make its 3+2 strategy appear more palatable by delaying costs, lowering cost estimates while claiming improved cost modeling, using a lower inflation factor, claiming savings for a program that doesn't exist, and failing to disclose a never-ending cycle of Life Extension Programs.

In some ways it defies common sense that NNSA continues to pursue its 3+2 strategy. The air leg currently involves the controversial Life Extension Program (LEP) of the B61-12 bomb, which has more than doubled in costs. NNSA won full funding for the B61 LEP in the FY 2014 Omnibus Appropriations Bill, but may face a tougher time with the likely traditional appropriations bills for FY 2015.

NNSA fared less well with its first interoperable warhead (IW-1), which involves the W78 ICBM warhead and the W88 sub-launched warhead. Congress cut requested funding for a W78/88 LEP study in half to $38 million in the FY 2014 Omnibus Appropriations Bill, and confined the effort to the W78 warhead only. Not long thereafter NNSA somehow found new data that the W78 was "aging gracefully" after all, and declined to ask for any W78 LEP funding in its recent FY 2015 Congressional Budget Request.

To top it off, the Navy does not support the IW-1. In September 2012 the Navy said that it did not support even starting a W78/88 feasibility study, and questioned NNSA's "ability to execute its currently programmed work." [1] The Navy further stated, "We support delaying this [W78/88 feasibility] study work until mid 2020's…." --which would effectively kill it. Nevertheless, NNSA continues to make its sales pitch to Congress, which this analysis examines and dissects.

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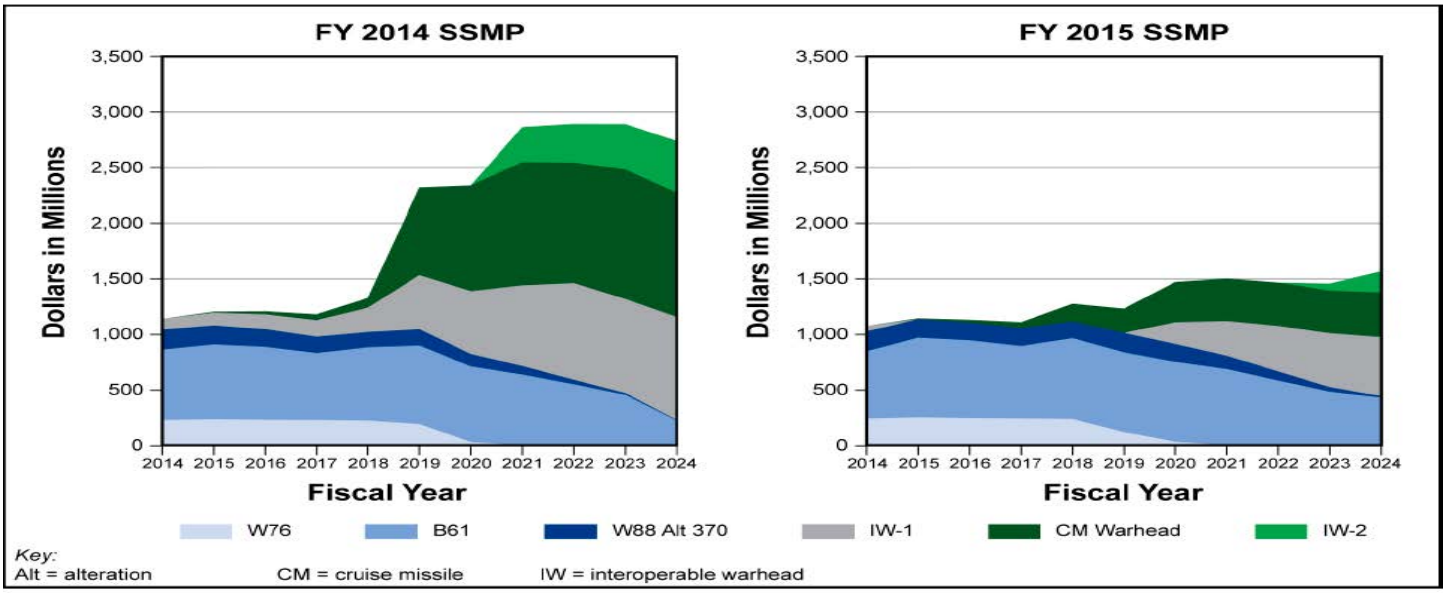
[1] See memo, subject: "Navy Perspective of W78/88 LEP Phase 6.2," September 27, 2012, http://www.nukewatch.org/importantdocs/resources/Navy-Memo-W87W88.pdf

Analysis of Selected Key Excerpts [2]

P. iii (7): *Executive Summary…. The FY 2015 SSMP continues to support the 3+2 strategy, with budget-driven schedule adjustments… The following graphs show the adjusted life extension program of record from FY 2014 to FY 2015, which levels the warhead modernization requirements in today's budget environment while maintaining the vision of the 3+2 strategy.*



As shown above, NNSA tries to sell annual LEP costs in its FY 2015 Plan as being nearly half of what they were projected to be in its FY 2014 Plan ($2.8B vs. $1.5B). To achieve this, NNSA has sharply reduced cost estimates for individual LEPs (see table). This flies in the face of the agency's established, abysmal track record of cost overruns, where the comparatively simple W76 LEP increased in costs to around $4 billion. Currently, the planned B61-12 LEP has doubled in costs from an originally estimated $4 billion to $8.79 billion, while the Pentagon's respected Office of Cost Assessment and Project Evaluation (CAPE) puts it at $10 billion.

(in billions)	FY14 SSMP	FY15 SSMP
IW-1	$13.95	8.96
Cruise Missile	11.56	6.05
IW-2	13.50	9.90

NNSA's litany of failed multi-billion projects is long and expensive (for example, the National Ignition Facility, the Chemistry and Metallurgy Research Replacement Project, the Uranium Processing Facility and the MOX Fuel Fabrication Facility). The agency has shown time and again that its costs estimates cannot be trusted. Therefore, NNSA's substantial cost reductions for its 3+2 strategy must be treated with heavy skepticism, and at a minimum verified by DoD CAPE studies. This is especially true of the cruise missile warhead, responsible for the very steep rise in costs in the FY 2014 Plan (see above), but now reduced by nearly 50% before its feasibility study is even started. This claimed reduction is not justified or explained in the SSMP.

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[2] Excerpts from NNSA's FY 2015 Stockpile Stewardship and Management Plan are italicized.
Narrative page numbers are given, followed by PDF page numbers in parentheses. The FY 2015 SSMP is technically an "update" to the FY 2014 Plan. Both are available at http://www.nnsa.energy.gov/ourmission/managingthestockpile/ssmp
Both have classified annexes, which obviously we are not able to review.

To further sell its 3+2 strategy, NNSA uses project delays to dramatically lower the spending curve. The costs will still be incurred, but will be spread out over a longer period of time. But demonstrated NNSA history shows that project delays always result in increased total costs because of inflation, continuing overhead, the need to keep salaried workers longer, etc. Delays may help to expediently flatten the projected spending curve, making it more visually appealing. But combined with unverified estimated cost reductions, NNSA's revised budget projections for its 3+2 strategy must be viewed with deep suspicion.

NNSA's litany of failed multi-billion projects is long and expensive. The agency has shown time and again that its cost estimates cannot be trusted.

P. 8-10 (84): *The nominal cost of the overall program for FY 2020 – FY 2039 in Figure 8–12 falls within +/- 2 percent of the escalated (dashed black) FY 2019 line, significantly less than the variation in the FY 2014 SSMP Weapons Activities cost of up to +/- 11 percent.* ***This allows the conclusion that it is, as planned, generally affordable and more executable than the program proposed in the FY 2014 SSMP.*** Emphasis added.

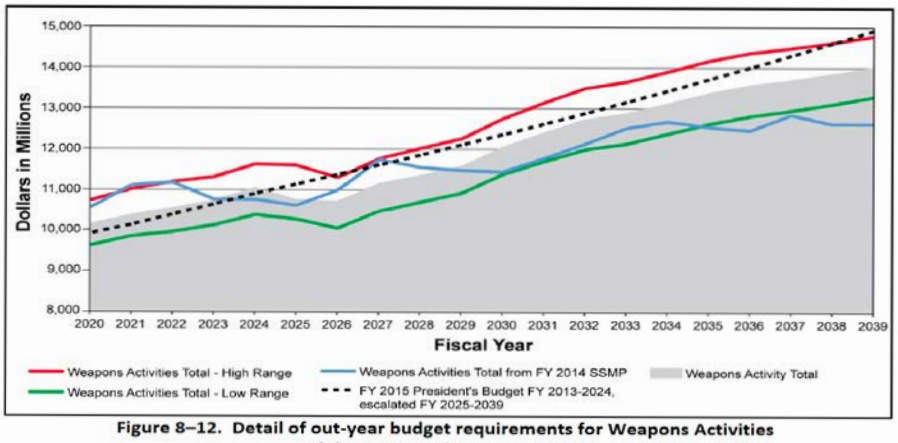

Figure 8–12. Detail of out-year budget requirements for Weapons Activities of the NNSA in then-year dollars

This statement in particular is misleading. The gross numbers for NNSA's projected outyear budget requirements remain what they are, irrespective of NNSA's self-confidence in its own numbers. This is, after all, the very agency that has a chronic and habitual pattern of busted cost estimates. What does it matter that NNSA thinks cost variation is +/- 2% in its FY 2015 Plan versus +/- 11% in its FY 2014 Plan? How does NNSA's claim of having greater confidence in itself make LEPs any more affordable and executable, when the agency itself is so discredited? Congress should go to an outside agency, such as DoD's Office of Cost Assessment and Project Evaluation, to verify confidence in budget numbers for NNSA's 3+2 strategy. And every CAPE study so far has arrived at far higher cost estimates than NNSA.

P. 8-16 (90): *Figure 8–21, an update to Figure 8–25 in the FY 2014 SSMP, is a one-chart summary of the total projected nuclear weapons life extension costs from FY 2014 through FY 2039… The dotted line shows the LEP cost reflected in the FY 2014 SSMP.* ***The principal differences between the FY 2014 and FY 2015 estimates are the adjusted timing of the cruise missile and interoperable warheads,*** *the adjustment in the escalation factor from the 3.4 percent value used in the FY 2014 SSMP estimates to the OMB-recommended level (2.11 percent),* ***and improvements in the cost models for future life extensions.*** Emphasis added.

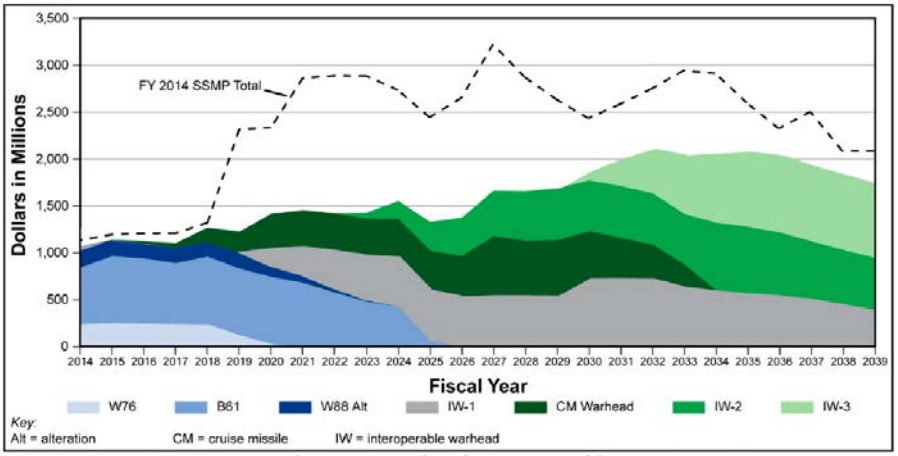

Figure 8–21. Total U.S. projected nuclear weapons life extension costs for fiscal years 2014 through 2039 (then-year dollars)

The lack of trust that can be put into NNSA cost estimates has already been discussed. The adjustment in inflation seems reasonable given current economic trends. However, there is no basis for how NNSA arrived at "improvements in the cost models for future life extensions", which if true would be important to document. These claimed improvements in cost modeling should be demonstrated to Congress before it grants increased funding.

P. 8-17 (91): ***The conclusion of the analysis at that time, and now updated based on adjustments described in this SSMP, is that the 3+2 strategy reduces the total long-term NNSA costs through decreased LEP costs.*** *This reduction is driven in part by greater efficiency in hedging with the 3+2 stockpile, which reduces the number of warheads to be refurbished even though the size of the active stockpile is the same for both strategies. These savings are partially offset by increased sustainment costs (about $70 million per year in FY 2014 dollars, as shown in Figure 8–13) during the period of transition to a 3+2 stockpile when both the original and the new interoperable warheads are being sustained. Figure 8–22 shows the high versus low cost ranges for the FY 2011 SSMP refurbishment-only strategy compared to the FY 2015 SSMP implementation of the 3+2 strategy over the period FY 2014 to FY 2039.*[3] Bolded emphasis added.

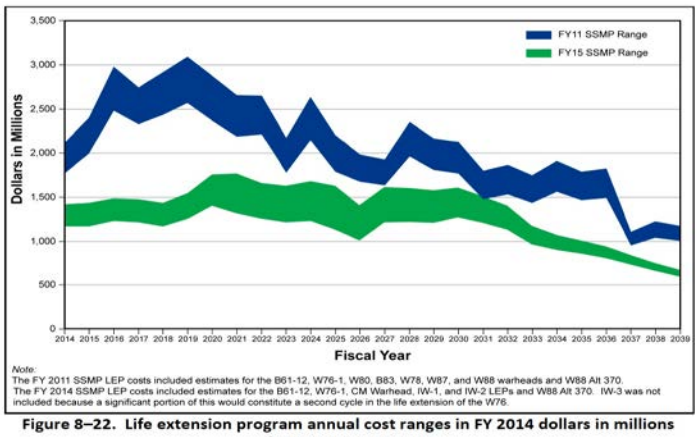

Figure 8–22. Life extension program annual cost ranges in FY 2014 dollars in millions for FY 2014 – FY 2039

NNSA's FY 2015 SSMP, p. 8-18 (92)

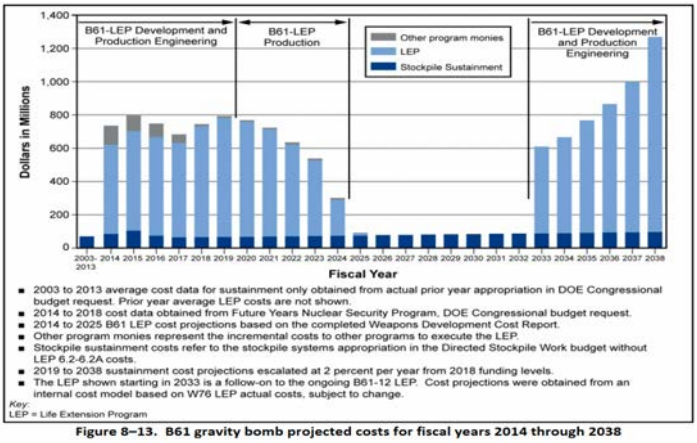

Figure 8–13. B61 gravity bomb projected costs for fiscal years 2014 through 2038

NNSA's FY 2014 SSMP, p. 8-12 (198)

First, please note the drift from the "FY 2011 SSMP refurbishment-only strategy compared to the FY 2015 SSMP implementation of the 3+2 strategy," which is key. This is a progression from maintenance of the stockpile to replacement of the stockpile, which we argue, contrary to NNSA's claims, will inevitably lead to higher costs.

Replacement over refurbishment entails significant technical risk, possibly leading to eroded confidence in the reliability of the nuclear weapons stockpile because of increasing deviation from the tested legacy.

[3] It is perhaps confusing that NNSA suddenly switches to a comparison with the FY 2011 SSMP. NNSA wants to draw a comparison with a time before the 3+2 strategy was introduced in its FY 2014 Plan, and the agency failed entirely in its statutory requirement to produce an annual SSMP for FY 2013 (and to provide required five-year cost projections in its Congressional Budget Request). Why NNSA chooses to compare to the FY 2011 SSMP instead of the 2012 SSMP is not clear. Maybe it is because the FY 2011 SSMP was the first Plan following the Obama Administration's 2010 Nuclear Posture Review, the overarching policy document that the SSMPs purport to follow.

But even more importantly, we argue replacement over refurbishment entails significant technical risk, possibly leading to eroded confidence in the reliability of the nuclear weapons stockpile because of increasing deviation from the tested legacy. As a concrete example, ex-LANL Director Michael Anastasio objected to a refurbishment-only strategy in writing to the House Armed Services Committee. Two of his specific objections were that it would preclude "intrinsic surety systems" and the replacement of conventional high explosives (CHE) with insensitive high explosives (IHE) in some warheads.[4] Surety systems could be built into the Nuclear Explosives Package to disable the weapon if diverted, but could undermine performance reliability by perturbing implosion symmetry (and besides we will always need "guard, guns and gates" anyway). CHE replacement, in principle, could involve three of the seven types of warheads in the arsenal.[5] Both efforts would be huge design undertakings, which could have questionable assurance of success without full-scale testing, which in turn would have severe international implications. NNSA's pursuit of a stockpile replacement strategy could be a very precipitous slippery slope, with very serious consequences if not held in check by Congress.

Figure 8-22 in the FY 2015 SSMP (above left) is deceptive because the FY 2014 Plan clearly showed a LEP for the B61-12 beginning in 2033 (above right). This is an essential point, in contradiction to the FY 2015 Plan's impression that Life Extension Program costs will gradually taper out. To the contrary, a never-ending cycle of LEPs is planned in which a follow-on LEP occurs twenty years after the original LEP. In fact, as can be seen in the FY 2014 SSMP graph, initial estimates show that the follow-on Life Extension Program costs even more than the first LEP (costs don't end at 2038). Therefore there is no ceiling to the astronomical costs that NNSA plans to spend on Life Extension Programs. To not disclose this while claiming that the 3+2 strategy is a long-term cost saver is misleading, and withholds the full picture from Congress.

A never-ending cycle of Life Extension Programs is planned, in which a follow-on LEP occurs twenty years after the original LEP. To not disclose this while claiming that the 3+2 strategy is a long-term cost-saver is misleading, and withholds the full picture from Congress.

NNSA argues that interoperable warheads will enable a smaller total stockpile because it will lower the need for reserves in the "hedge" stockpile, and thereby lower long-range stockpile costs. First, that assumes technical success in increasingly complex LEPs. For example, the IW-1 will combine the military characteristics of the land-based ICBM W78 warhead with the sub-launched W88 warhead, while using the plutonium pit core of yet a third warhead, the W87. This is an unheard level of complexity, for which, by the way, NNSA has just lowered its cost estimate by an unlikely 36%. But it also begs the question of when a heavily modified nuclear weapons design becomes "new," which is against declared national and international policy.

Second, even if its 3+2 strategy goes forward, as NNSA admits there will be a transition period in which there will be both old and new warheads, leading to an increase in the entire stockpile.

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[4] LANL Director Michael Anastasio to House Armed Services Committee, Subject: JASON Report on Life Extension Options for the U.S. Nuclear Weapons Stockpile, January 25, 2010, http://www.nukewatch.org/importantdocs/resources/JASON_letter1.pdf

[5] The W76 and W88 sub-launched warheads and perhaps the W78 ICBM warhead.

The Obama Administration's FY 2015 budget request cuts dismantlements funding by 45%. Therefore, we cannot be confident that the old warheads would be expediently retired and dismantled. In any event, NNSA cannot guarantee that the stockpile will be reduced - - that is ultimately up to a future President who may or may not authorize further cuts to the stockpile.

NNSA directly credits its 3+2 strategy with savings of up to $28.6 billion over 25 years, as follows:

Table 8–11. Life extension program cost comparison of FY 2011 SSMP and FY 2015 SSMP life extension program strategies

Millions of FY 2014 Dollars	*Cost FY 2014 – FY 2039*	*Total Cost*
FY 2011 SSMP Low	46,859	56,066
3+2 High	36,036	45,857
3+2 Minimum Reduction	**10,823**	**10,208**
FY 2011 SSMP High	56,431	66,571
3+2 Low	28,478	37,965
3+2 Maximum Reduction	**27,953**	**28,606**

NNSA's FY 2015 SSMP, p. 8-18 (92)

To add to that:

P. 8-17 (91): *A portion of the savings also comes from the avoidance of a B83 LEP since, under the 3+2 strategy, the B83 could be retired after confidence in the B61-12 has been demonstrated, and no such decision had been made as of the FY 2011 SSMP. The cost of this LEP contributes $7.5–9.5 billion to the difference in LEP costs shown in Table 8–11.*

P. 9-1 (99): *"The 3+2 strategy with respect to the B61-12 will, for example, greatly reduce the number and types of bombs in the air leg of the Triad and will allow the option to retire the B83."*

This is misleading because there is simply no Life Extension Program for the B83 in either the FY 2011 or FY 2014 SSMP, nor in any of NNSA's annual Congressional Budget Requests. Therefore, up to a third of the NNSA's claimed savings under its 3+2 strategy are from NOT doing a LEP that never existed and never had cost estimates.

Up to a third of the NNSA's claimed savings under its 3+2 strategy are from NOT doing a Life Extension Program that never existed and never had cost estimates.

Moreover, the lack of a B83 LEP likely points to an effective decision to retire it, prior to NNSA's roll out of its 3+2 strategy. After all, the B83's huge 1.2 megaton yield (75 times more powerful than the Hiroshima bomb) is simply too big for credible deterrence, and an undisclosed number of B83's have already been dismantled. Linking retirement of the B83 to a successful B61-12 LEP seems like NNSA's latest convenient rationale for justifying transforming the B61 nuclear bomb.

A B61-12 mounted on a wind tunnel test stand. The new guided tailfin kit is clearly visible, turning it into the world's first nuclear "smart" bomb.

Given NNSA's claim that its 3+2 strategy ultimately saves money, it is then a fair question to ask why does it have to be 3+2? Why does the U.S. need both the B61-12 nuclear smart bomb for future air defense-penetrating stealthy fighters, and a standoff nuclear cruise missile warhead for future heavy bombers? For that matter, why does the U.S. need three future "interoperable" warheads?

Related 3+2 Strategy Costs

The Uranium Processing Facility

The Uranium Processing Facility (UPF) will manufacture up to 80 thermonuclear secondary components per year for Life Extension Programs under NNSA's 3+2 strategy. The agency has little to say about the UPF in its FY 2015 Plan other than mentioning the formation of a Red Team to study alternatives. Acting NNSA Administrator Bruce Held has recently acknowledged that out of ~1.2 billion taxpayer dollars spent to date half of it has been wasted in a "space fit" design fiasco. Meanwhile, the Government Accountability Office continues to warn that UPF's new uranium processing technologies are still not mature.

A December 2013 DoD CAPE study predicted this exorbitant facility, originally estimated by NNSA at ~$600 million, would cost between $12 to 19 billion, depending on the time period of construction. NNSA's recently released FY 2015 budget request capped UPF construction at $6.5 billion, but did so by indefinitely deferring all dismantlement and HEU downblending operations, making it a production-only nuclear weapons plant. The FY 2015 SSMP states that a UPF security subproject has been postponed that would have reduced the highly sensitive area at Y-12 from 150 acres to about 80 acres. This is doubly ironic given that reducing Y-12's security footprint was one of the original rationales for the UPF to begin with, followed by the now famous July 2012 security breach by peace activists. These postponements clearly demonstrate how Life Extension Programs under the 3+2 strategy are robbing from dismantlement, nonproliferation and security programs.

Moreover, do we really need a production facility for nuclear weapons uranium components if the 3+2 strategy does not go forward? If NNSA does persist in its 3+2 strategy, it should then include total UPF costs, or an appropriately calculated portion thereof.

The "Alternative Plutonium Strategy"

P. 9-2 (100): *NNSA is assessing a methodical, revised approach to the plutonium strategy to end operations by 2019 in the Chemistry and Metallurgy Research facility (which was built in 1952) and to optimize the plutonium capability. This revised plutonium strategy includes a three-step approach that maximizes use of the Radiological Laboratory Utility Office Building (RLUOB) for analytical chemistry work, repurposes laboratory space in the Plutonium Facility (PF-4), and may construct modular additions to PF-4 for high-risk plutonium operations. This approach would result in a cost-effective solution to enhancing the plutonium capability and an alternative to constructing the Chemistry and Metallurgy Research Replacement Nuclear Facility (CMRR-NF). The approach is also responsive to planned life extension programs such as the IW-1 that delays the need to ramp up to 30 pits per year until FY 2026.*

Future pit production is clearly linked to IW-1 production, and the cost of upgraded and/or new plutonium facilities should be included in the full costs of implementing NNSA's 3+2 strategy.

The converse should also be considered. Are upgraded and/or new plutonium facilities really needed if the IW-1 and subsequent warheads under the 3+2 strategy do not go forward? The answer in all likelihood is no, certainly not on the scale that is being contemplated, which would result in huge taxpayers' savings, as PF-4's "modular additions" could still cost a billion dollars.

As with the UPF, if NNSA persists in its 3+2 strategy, it should then include total costs of related upgraded and/or new plutonium facilities, or an appropriately calculated portion thereof.

LANL's existing plutonium pit production facility (PF-4) on right, the newly built CMRR Rad Lab on left, with premature excavation for the canceled Nuclear Facility behind it. NNSA is now planning to build underground "modules" between PF-4 and the Rad Lab. *Picture credit: Nuclear Watch New Mexico*

Other Directly Related Programs

P. 2-6 (32): *The NNSA must balance requirements with plutonium and pit production capabilities to meet national policy goals, stockpile requirements, and LEP planning. In response to budget priorities and changed LEP requirements, the pit production schedule has changed from the FY 2014 SSMP. The first War Reserve W87-like pit to support the current IW-1 schedule is planned for FY 2024, with a ramp up to 30 pits per year capability no later than FY 2026... Current plans call for pit production capability of 50 – 80 pits per year by FY 2030.*

The mission of "Plutonium Sustainment" includes "Fabrication of design definition development pits that explores design changes for possible surety-related or other desirable features." Despite the 5-year deferral of the W78/88 "interoperable warhead" that will use W87 pits, the Los Alamos National Laboratory still plans to "Build W87-design developmental pits each year to sustaining [sic] fabrication capability." NNSA estimates that Plutonium Sustainment will cost nearly $800 million over the next five years (at which point estimates end).[6] Plutonium pit production costs for NNSA's 3+2 strategy should be included in total estimated costs, and presented to Congress as such.

Out of NNSA's FY 2015 budget request of $8.3 billion for nuclear weapons research and production programs, $1.8 billion is for "Campaigns", defined as "scientific, technical, and engineering efforts to develop and maintain critical capabilities, tools, and processes needed to support science based stockpile stewardship, refurbishment, and continued certification of the stockpile over the long-term in the absence of underground nuclear testing."[7] As an example, "The Readiness Campaign develops and deploys manufacturing capabilities to meet current and future nuclear weapon design and production needs of the stockpile."[8] The planned future design and production needs are being driven by Life Extension Programs under NNSA's 3+2 strategy. Therefore, NNSA should include the cost of Campaigns, or an appropriately calculated portion thereof, in the 3+2 strategy budget information it presents to Congress.

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6 NNSA FY 2015 Congressional Budget Request, PDF p. 114 – 117.

7 Ibid., PDF p. 69. These are Science, Engineering, Ignition and High Yield, Advanced Simulation and Computing, and Readiness Campaigns

8 Ibid., PDF p. 199.

In sum, additional costs directly related to NNSA's 3+2 strategy will likely cost as much or more than the Life Extension Programs themselves.

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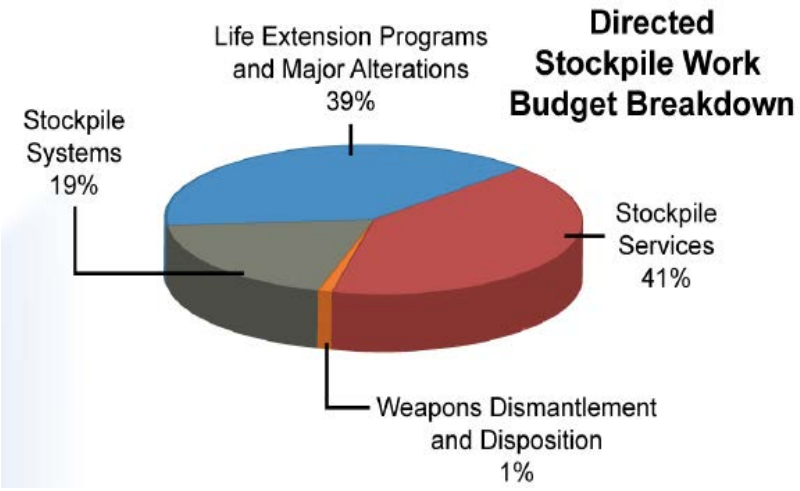
Indirect Costs

Given budget constraints, NNSA is paying for its 3+2 strategy by robbing from virtually all other programs. Increased nuclear weapons funding will be paid for off the back of nonproliferation and dismantlement programs; by keeping cleanup funding flat, even as cost estimates of genuine cleanup rise; and potentially cutting funding for nuclear facility safety when "the decrease is to reduce base operational costs and funds higher NNSA priorities." NNSA has made explicit what its higher priorities are: The B61 and subsequent Life Extension Programs under its 3+2 strategy.

Increased nuclear weapons funding for NNSA's 3+2 strategy will be paid for off the back of nonproliferation and dismantlement programs, by keeping cleanup funding flat, and cutting funding for nuclear facility safety.



The FY 2015 SSMP shows Weapons Dismantlement and Disposition as a mere 1% of Total Weapons Activities. P. 8-3 (77). According to NNSA's FY 2015 budget request, while implementing NNSA's 3+2 strategy at exorbitant expense, the Obama Administration proposes to slash dismantlements by 45%, from an already paltry $54.2 million to $30 million. Dismantlement work at the Pantex Plant will be cut by 40%. Ironically, much of the dismantlement work that remains is "to provide parts for the life extension programs (B61 and W80-1)." Dismantlements will continue at the same rate at the Y-12 Plant, but its primary aim is to produce "feedstock [highly enriched uranium] for internal and external customers (e.g. Naval Reactors)." NNSA describes dismantlements as a "a workload leveler across all programs," indicating that instead of being a prioritized step toward a future world free of nuclear weapons, they are mere filler work in between rebuilding nuclear weapons during Life Extension Programs for the 3+2 strategy.[9]

[9] Ibid., PDF p 109.

The cuts to dismantlements will have tangible long-range costs because of the need for security of nuclear weapons that would otherwise no longer exist. Cuts to dismantlements could have incalculable intangible costs by undermining U.S. leadership toward a future world free of nuclear weapons.

Similarly, cuts to nonproliferation programs can have huge intangible costs. Particularly disturbing is the 24% cut to the Global Threat Reduction Initiative, which "reduces and protects vulnerable nuclear and radiological materials located at civilian sites worldwide that could be used by terrorists to make an improvised nuclear device or a radiological dispersal device." Clearly every dollar invested in GTRI returns large dividends in enhanced security for our country, which sadly NNSA's 3+2 strategy steals from.

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"Operations of Facilities," which "provides for costs associated with regulatory compliance and environment, safety, health and quality," is being cut 9% across the board at all eight NNSA sites in order "to fund higher priorities."[10] Any lessening of safety is inherently a bad idea, and can cause NNSA far greater expense, as the recent example of radioactive contamination at DOE's Waste Isolation Pilot Plant shows. Sandia Labs Director Paul Hommert recently testified before the Senate Armed Services Committee, "The resources required to execute modernization, which is the clear priority, is causing us to reduce efforts in other areas that increase long-term risk."

Sen. Dianne Feinstein, chairwoman of the Senate Energy and Water Development Appropriations Committee, recently commented while questioning DOE Secretary Ernest Moniz, "What I see are additional cuts to well-managed programs that have made this country safer from nuclear terrorism, at the expense of increased funding for poorly-managed nuclear weapons programs… Slashing programs that prevent nuclear terrorism and protect the health and safety of communities from the effects of nuclear weapons production is a major concern, and I hope you're prepared with a good explanation."

Ultimately, another incalculable indirect cost may be the potential undermining of confidence in the existing, thoroughly tested nuclear weapons stockpile, which study after study has shown to be even more reliable than previously thought. Confidence in stockpile reliability could be lost because of major changes intentionally introduced during Life Extension Programs under the 3+2 strategy. The recent DOE Inspector General audit report *NNSA Nuclear Weapons Systems Configuration Management* adds to this concern.[11] It states:

> CM information [original "as-built" nuclear weapons designs] is the foundation upon which the NNSA surveillance program assesses the current stockpile. Without it, NNSA loses confidence in its nuclear weapons stockpile assessments… unauthorized system access and changes to weapons drawings, incomplete engineering authorizations and inadequate assessments of vendor-supplied parts may ultimately increase costs and could negatively impact the reliability and safety of U.S. nuclear weapons.

[10] Ibid., PDF pp. 211-213.

[11] *NNSA Nuclear Weapons Systems Configuration Management* (DOE/IG-0902), DOE Office of Inspector General, March 2014.

Some specific findings are:

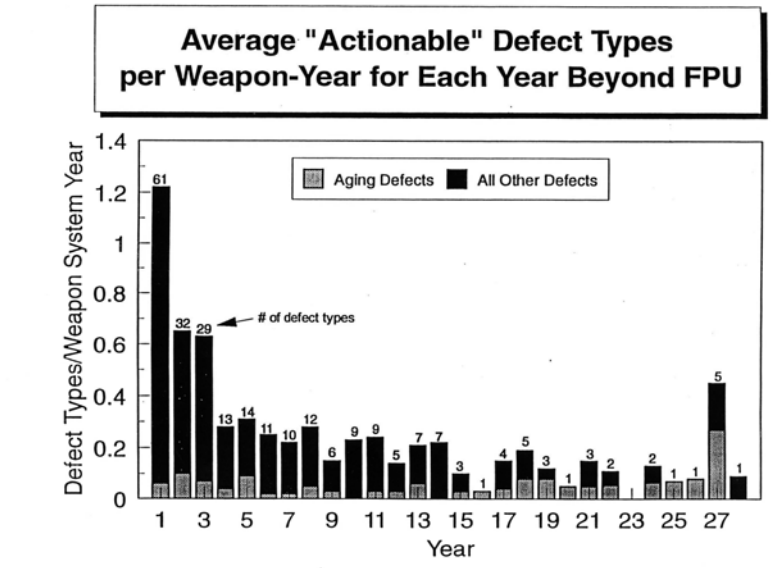
- "NNSA sites could not always locate as-built product definitions or associated drawings for nuclear weapons and components in its official records repositories."
- 63% of LANL authorizations did not have required technical justifications to provide assurance that new components were suitable for use in a nuclear weapon.
- Use of an unqualified component caused W76 LEP production to be delayed by one year, with additional corrective costs of between $20 and $25 million. Stockpile reliability could have been impaired had the unqualified part not been discovered.
- "Over the decades of nuclear weapons development, neither NNSA nor its sites treated the maintenance of original nuclear weapons design blueprints as a priority."

That lack of priority violates NNSA's stated mission to preserve stockpile reliability. Clearly, NNSA and the nuclear weapons labs have been seriously deficient in their national security obligations given their negligence in maintaining original designs. It calls into question their motivations while asking taxpayers to fund their 3+2 strategy.

The Antidote: Genuine Stewardship or "Curatorship"

The antidote to the exorbitant, risky 3+2 strategy is genuine, conservative stewardship of the stockpile. This "curatorship" approach to stockpile maintenance would carefully preserve original designs (and their blueprints as a sine qua non). It would be highly focused on scrupulous stockpile surveillance and already well-understood exchange of limited life components (e.g., batteries, neutron generators and tritium reservoirs), which has been nearly routine for decades. Curatorship would conscientiously seek to minimize changes in materials and production processes as much as possible, and in fact seek to minimize production so as to lessen the chance for introducing uncertainties into stockpile reliability.

It is clear that, although nuclear weapons age, they do not wear out; they last as long as the nuclear weapons community (DoD and DOE) desires. --1993 Sandia Labs Stockpile Life Study



The 1993 Stockpile Life Study by the Sandia National Laboratories declared two decades ago, "It is clear that, although nuclear weapons age, they do not wear out; they last as long as the nuclear weapons community (DoD and DOE) desires. In fact, we can find no example of a nuclear weapons retirement where age was ever a major factor in the retirement decision… Missions, policy, standards, delivery systems, and state-of-technology change; however, nuclear weapons do not wear out." [12]

[12] Stockpile Life Study Summary, Sandia National Laboratories, 1993, authors not listed, parenthesis in the original. This quote is from the Summary's only narrative page, which is then followed by 32 viewgraphs. We know of no other public electronic copy of the Stockpile Life Study other than this scanned version by Nuclear Watch New Mexico at http://www.nukewatch.org/facts/nwd/Sandia_93_StockpileLife.pdf

The Study also found a steep downward curve in the first five years of 28 years' data, in which the overwhelming majority of nuclear weapons defects were design and initial production flaws that were detected and corrected in the first 2 to 5 years of production. In effect, the older nuclear weapons got, the more reliable they became, as shown in the viewgraph.[13] Why would we want to completely rebuild and/or replace our existing, reliable nuclear weapons with hundreds of new components, some of which are sure to have design and production flaws?

To add to the proven record of the reliability of our existing nuclear weapons, a decade ago NNSA was claiming that the crucial plutonium pit cores of nuclear weapons lasted only around 45 years. However, in 2006 a landmark review by eminent sciences (the "JASONs"), required by Sen. Jeff Bingaman (ret.) at the request of Nuclear Watch New Mexico, found that pits last at least 85 years, with clear "mitigation strategies" that enable them to last longer yet. This seriously undermined NNSA's proposals for new nuclear weapons designs (called the Reliable Replacement Warheads) and related expanded plutonium pit production, both of which Congress subsequently rejected.

Congress went on to request the JASONs to judge whether the current limited Life Extension Programs (LEPs) were sufficient to maintain the safety and reliability of the U.S. nuclear weapons stockpile. They answered:

> Lifetimes of today's nuclear warheads could be extended for decades, with no anticipated loss in confidence, by using approaches similar to those employed in LEPs to date. [14]

To emphasize a point, the JASONs were referring to LEPs to date, which at the time were refurbishment-only, not replacement. It was the implication that refurbishment-only could extend warheads for decades that led ex-LANL Director Michael Anastasio to object. He did not dispute that central finding, but rather the fact that refurbishment-only would prevent the nuclear weapons labs from doing the profound design changes they wanted to do (i.e. intrinsic surety systems and the replacement of conventional high explosives).

Or as Dr. Richard Garwin, a prominent member of JASON, observed earlier:

> [T]he important point is that a reliable stockpile of nuclear weapons identical to those that we plan to keep after 1996 can be maintained for many decades by the same kind of sampling and non-nuclear testing and remanufacturing that we practice now – if we maintain the organizational control and integrity to replicate but not modify or "improve" the weapons. The atoms of which the world is made do not age. They will be available in the future. [15]

"It takes an extraordinary flight of imagination to postulate a modern new arsenal composed of such untested designs that would be more reliable, safe, and effective than the current U.S. arsenal based on more than 1,000 tests since 1945."
--JASON member Sidney Drell and U.S. Ambassador James E. Goodby [16]

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13 Viewgraph "Average 'Actionable' Defects Types per Weapon-Year for Each Year Beyond FPU [First Production Unit]," Ibid. p. 8.

14 "Lifetime Extension Program (LEP) Executive Summary," JASONs, JSR-09-334E, Sept. 9, 2009, www.nukewatch.org/facts/nwd/JASON_ReportLEP.pdf

15 "Atoms do not age," Richard L. Garwin, the Bulletin of Atomic Scientists, October 1993.

16 "What are Nuclear Weapons For? Recommendations for Restructuring U.S. Strategic Nuclear Forces," Sidney Drell and James Goodby, an Arms Control Association Report, October 2007, p. 20.

Conclusion

NNSA's assertion that "the 3+2 strategy reduces the total long-term NNSA costs through decreased LEP costs" fails close scrutiny, in large part because of the progressively increasing complexity of LEPs for interoperable warheads. NNSA's assertion is loaded with claimed but unjustified lower cost estimates, claimed cost savings for a program that doesn't exist, and gross omission of directly related costs. To top it off, NNSA's 3+2 strategy could undermine stockpile reliability, ironically at tremendous taxpayers' expense through grandiose Life Extension Programs.

Congress should critically examine NNSA's 3+2 strategy, which we believe should be rejected. It would be far more fiscally prudent to pursue conservative stewardship, or "curatorship," of existing nuclear weapons. It would put our stockpile at less technical risk. It would allow funding to be reinvested into critically needed nonproliferation, dismantlements and cleanup programs, and facility safety and regulatory compliance.

NNSA's case for its 3+2 strategy for future nuclear weapons stockpile is hollow. Congress should direct the nuclear weapons complex to get back to basics and take up the real work of ensuring stockpile safety and reliability while progressing toward the declared national security goal of a future world free of nuclear weapons.

--Jay Coghlan, April 23, 2014

This analysis of NNSA's FY 2015 Stockpile Stewardship and Management Plan can be downloaded at
http://nukewatch.org/importantdocs/resources/FY2015-SSMP-analysis.pdf

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