Briefing to Scottish Parliament Members

On modernization of U.S. nuclear weapons, some dangers and opportunities ahead, and the value and promise of a ban treaty

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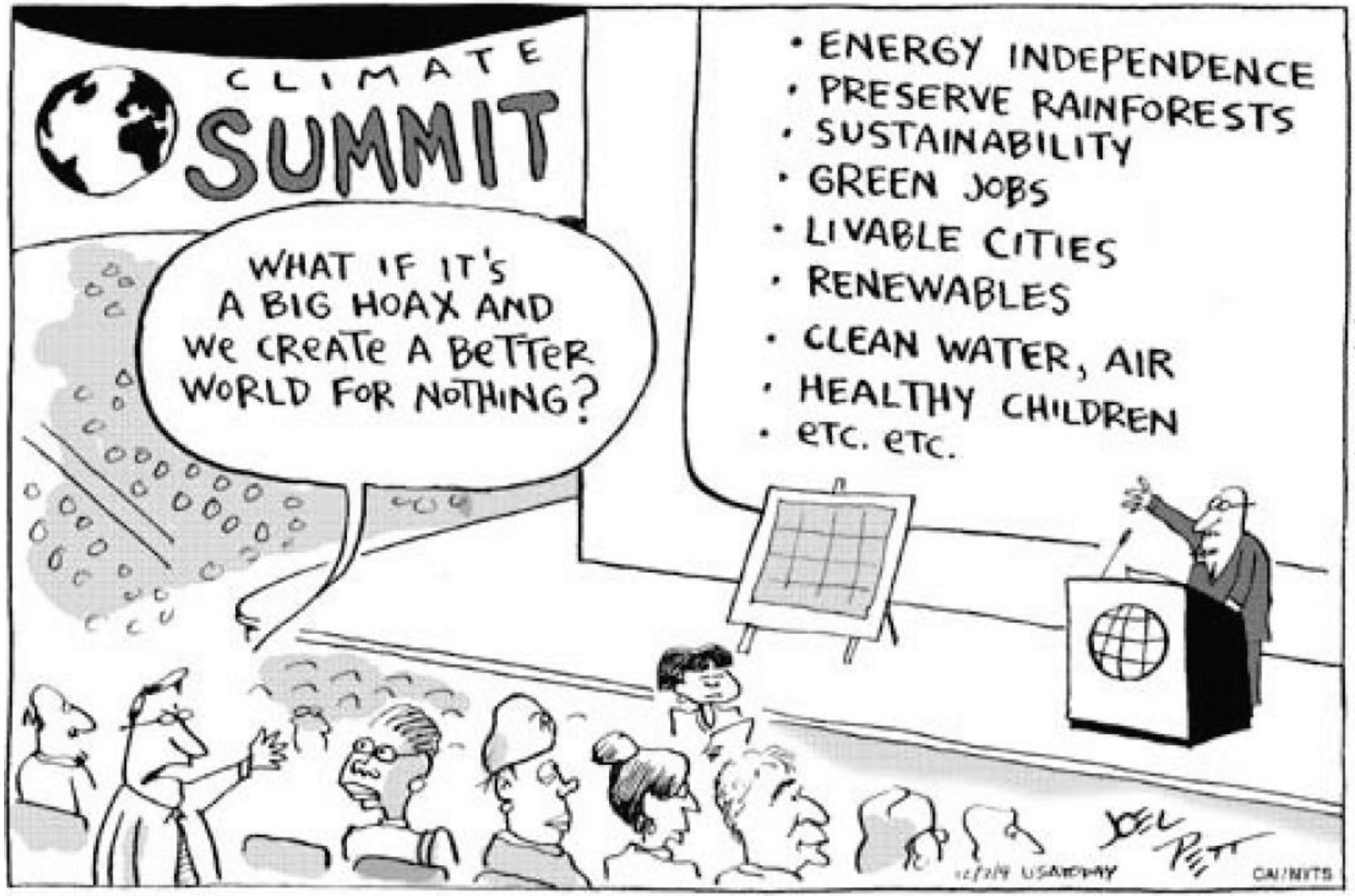
Greg Mello, Los Alamos Study Group, gmello@lasg.org
with help from Trish Williams-Mello
References available at lasg.org or upon request

Now, more than ever, technological, social, and political interdependence urgently calls for an ethic of solidarity…, which encourages peoples to work together for a more secure world, and a future that is increasingly rooted in moral values and responsibility on a global scale.

Pope Francis

Los Alamos Study Group
2901 Summit Place NE
Albuquerque, NM 87106
www.lasg.org, 505-265-1200

Pascal's wager redux



First off, THANK YOU for this opportunity. Now, in brief:

- U.S. nuclear weapons operational and procurement costs, including modernization, will be at least $355 billion (B) over the coming decade (Congressional Budget Office)
- Known costs are ~ $1 trillion over 30 years, not including the final planned Ohio-class submarines.
- Modernization is seen as continuous and unending.
- Nuclear weapon modernization is in part contested by the military and other parties within and outside government, is unevenly justified, and is subject to tremendous managerial, financial, political, and other risks.

In brief (continued):

- The future of U.S. NW modernization depends heavily on overall levels of military spending and the priority given to the military in society.
- Long delays may be tantamount to cancellations.
- Appropriators differ in approach from armed services committees in Congress.
- Submarine procurement is at the moment on track for success, as are submarine warheads. Air Force programs as a whole – less so. "Interoperable" warheads, even less so.
- Management issues loom very large vis-à-vis warheads, and in the Air Force.

In brief (continued):

- There will be no good-faith NW disarmament negotiations by the U.S. for the foreseeable future. Treaty-based arms control efforts will fail.
- There will be no strong or effective popular movement for nuclear disarmament in the U.S., ever.
- U.S. policies will change only from magisterial forces, foreign and domestic, beyond the control of foreign policy and economic elites. "Democratic" efforts can assist but not replace these.
- U.S. geopolitical ambitions are extensive and the U.S. is willing to incur and accept very great risks at this time for a variety of reasons – which risks it neither understands nor can control.

In brief (continued):

- A treaty banning NWs would be, in contrast to essentially all other approaches, an effective and realistic measure for nuclear disarmament.
- Current efforts toward a ban treaty can be very positively distinguished from recent prior approaches.
- Efforts toward a ban are supportive and complementary to disarmament approaches within domestic politics.
- Explicit support, in various possible forms, for a ban may serve other useful political agendas.
- Independently, it is important for security and development to oppose, not support, U.S./U.K. aggression.

CONGRESS OF THE UNITED STATES
CONGRESSIONAL BUDGET OFFICE

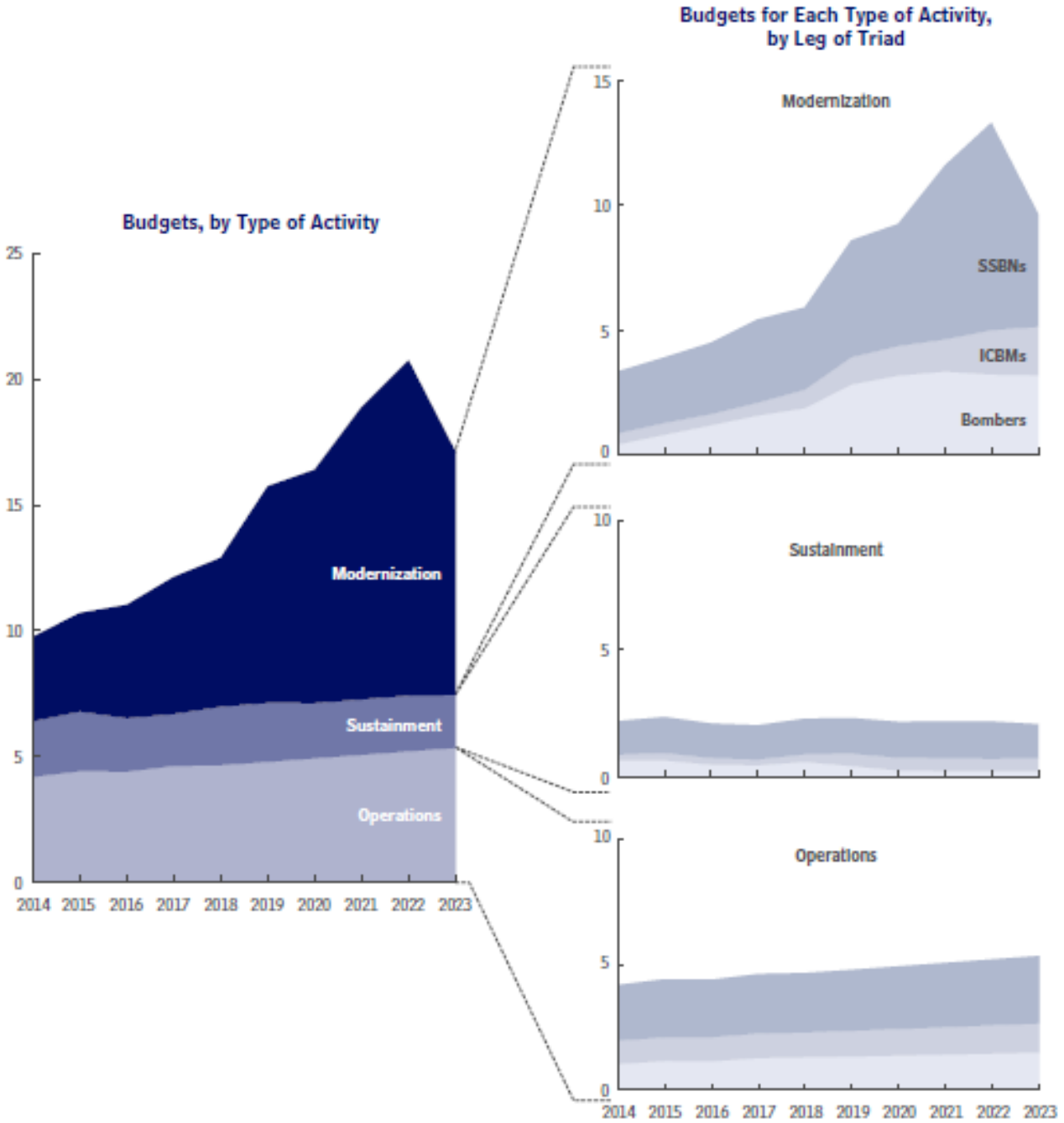
CBO

Projected Costs of U.S. Nuclear Forces, 2014 to 2023

DECEMBER 2013

Budgets for Operating, Sustaining, and Modernizing the Strategic Nuclear Triad

(Billions of dollars)



"The Trillion Dollar Nuclear Triad,"
James Martin Center for Nonproliferation Studies
Jon Wolfsthal, Jeffrey Lewis, Marc Quint, January 2014

Average Annual Cost/30-Year Projected Strategic Triad Costs

Program/Element	Annual Cost (Billions)	30-Year Cost (Billions)
Current Triad	$8-9	$240-270
NNSA weapons activities	$11.66	$350
Command, control, and communications	$4	$120
Minuteman follow-on	N/A	$20-120[13]
Long Range Standoff missile	N/A	$10-20
Ohio-class ballistic missile submarine	N/A	$77-102
Long Range Strike Bomber	N/A	$55-100[14]
TOTAL		$872-1,082

This assumes all goes reasonably well and there are no resource crises. Right...

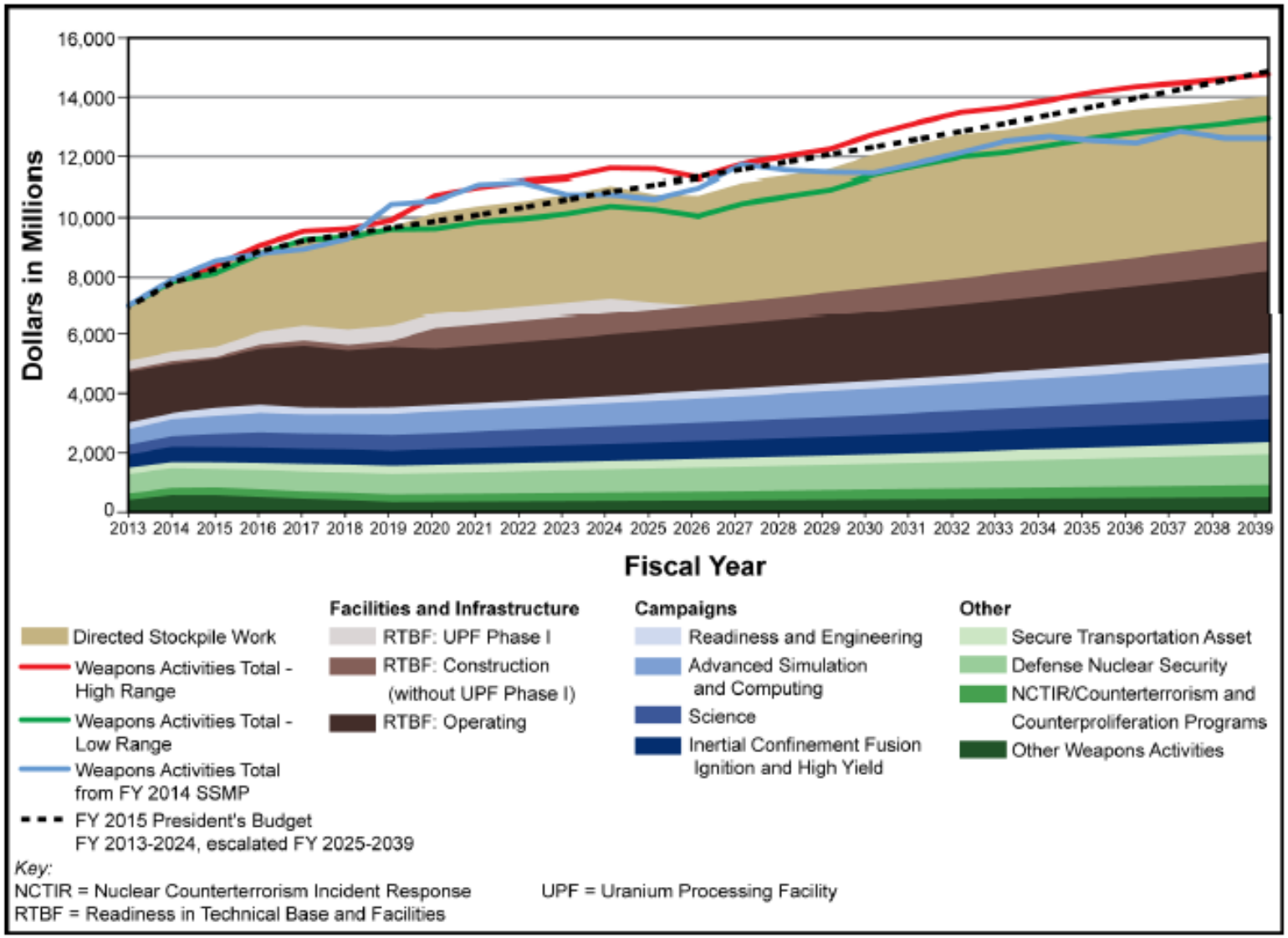


Figure 8–11. Estimate of out-year budget requirements for Weapons Activities of the NNSA in then-year dollars

(This figure updates Figure 8–12 in the FY 2014 SSMP.)

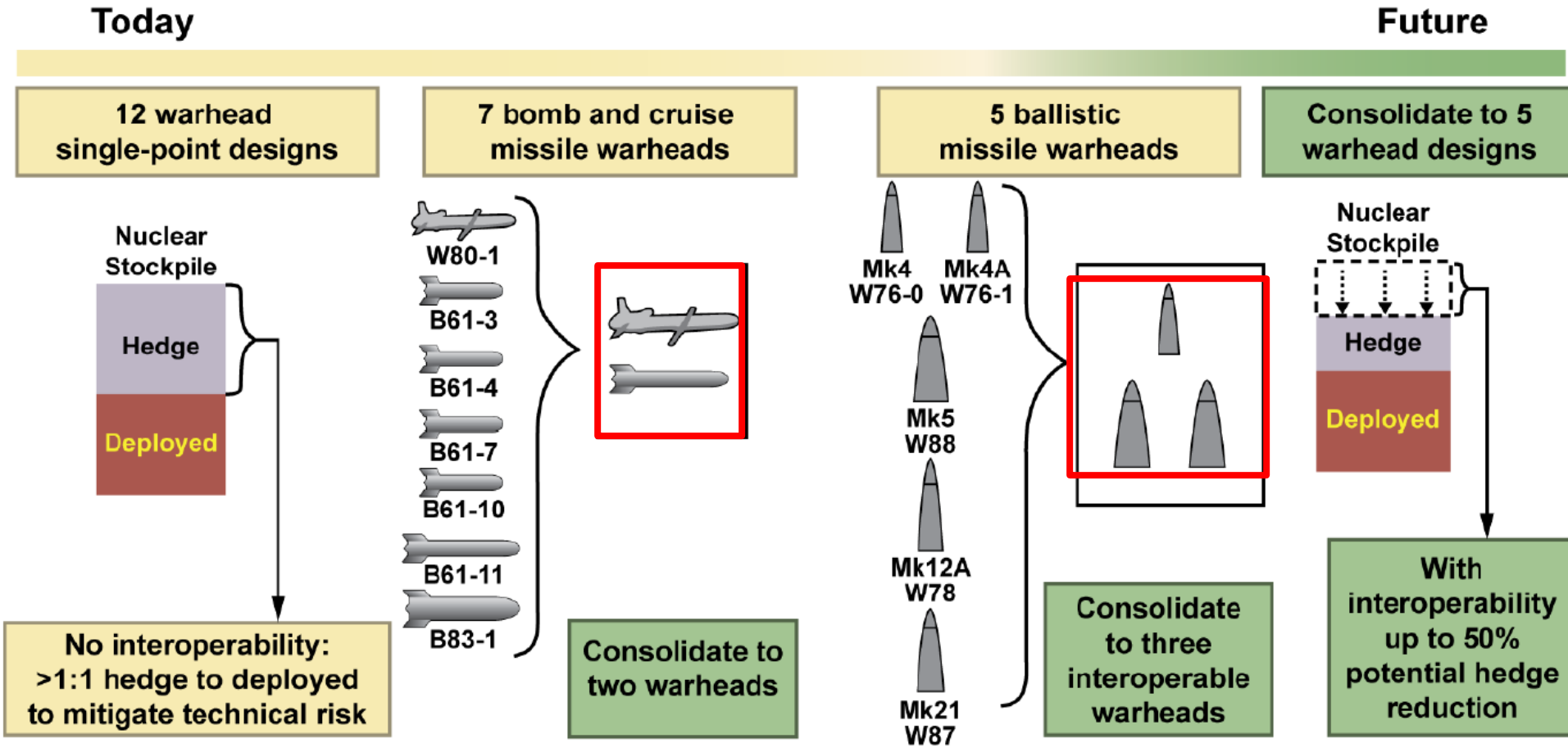
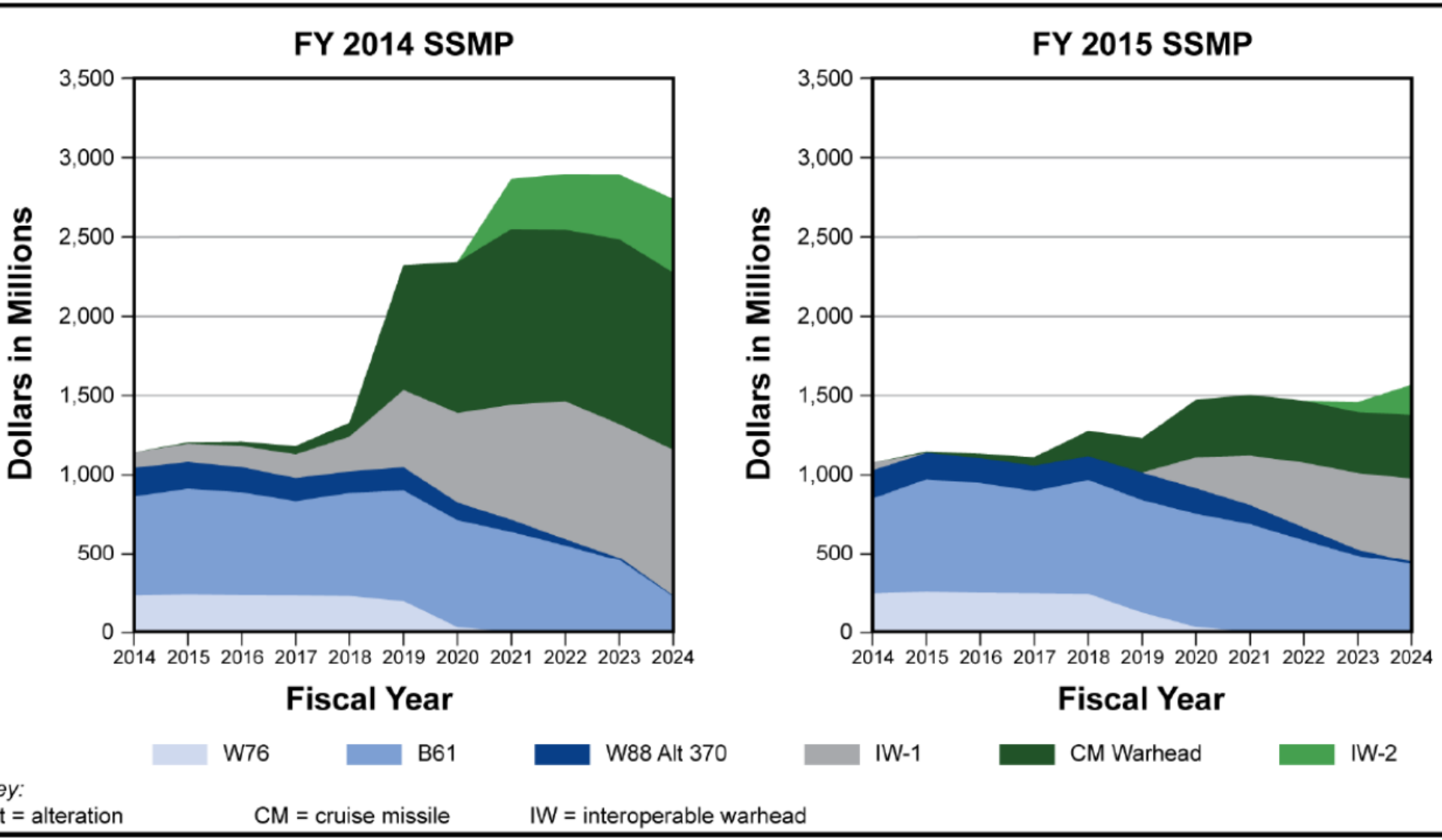


Figure 1–1. 3+2 strategy

Red boxes = 4 new-design warheads plus 1 renewed bomb with great accuracy, stealth delivery platforms, low- and high-yield options

Obama's 2014 Retrenchment in Warhead Modernization Aspirations (2)
LEP funding peak dropped by $1.3 B (45%) in coming decade



ey:
t = alteration CM = cruise missile IW = interoperable warhead

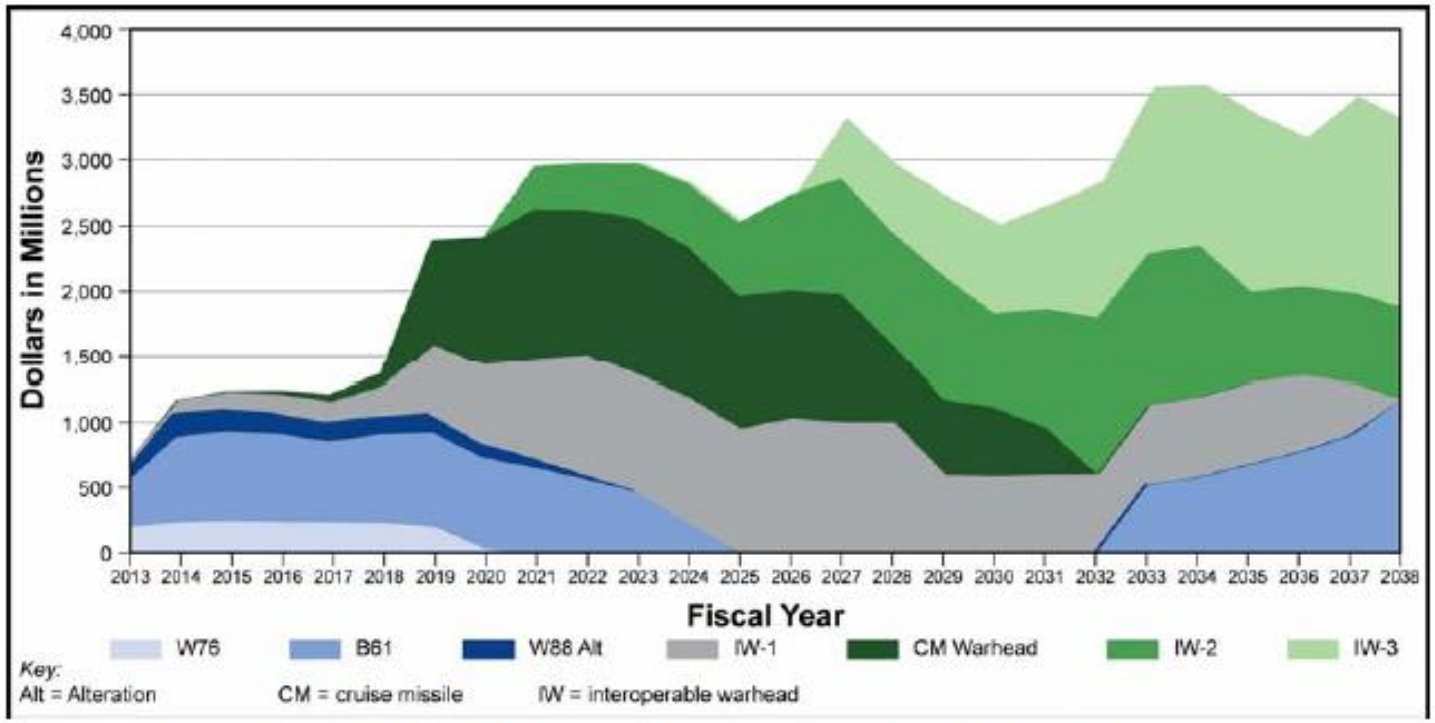


Figure 8–25. Total U.S. projected nuclear weapons life extension costs for fiscal years 2013 through 2038

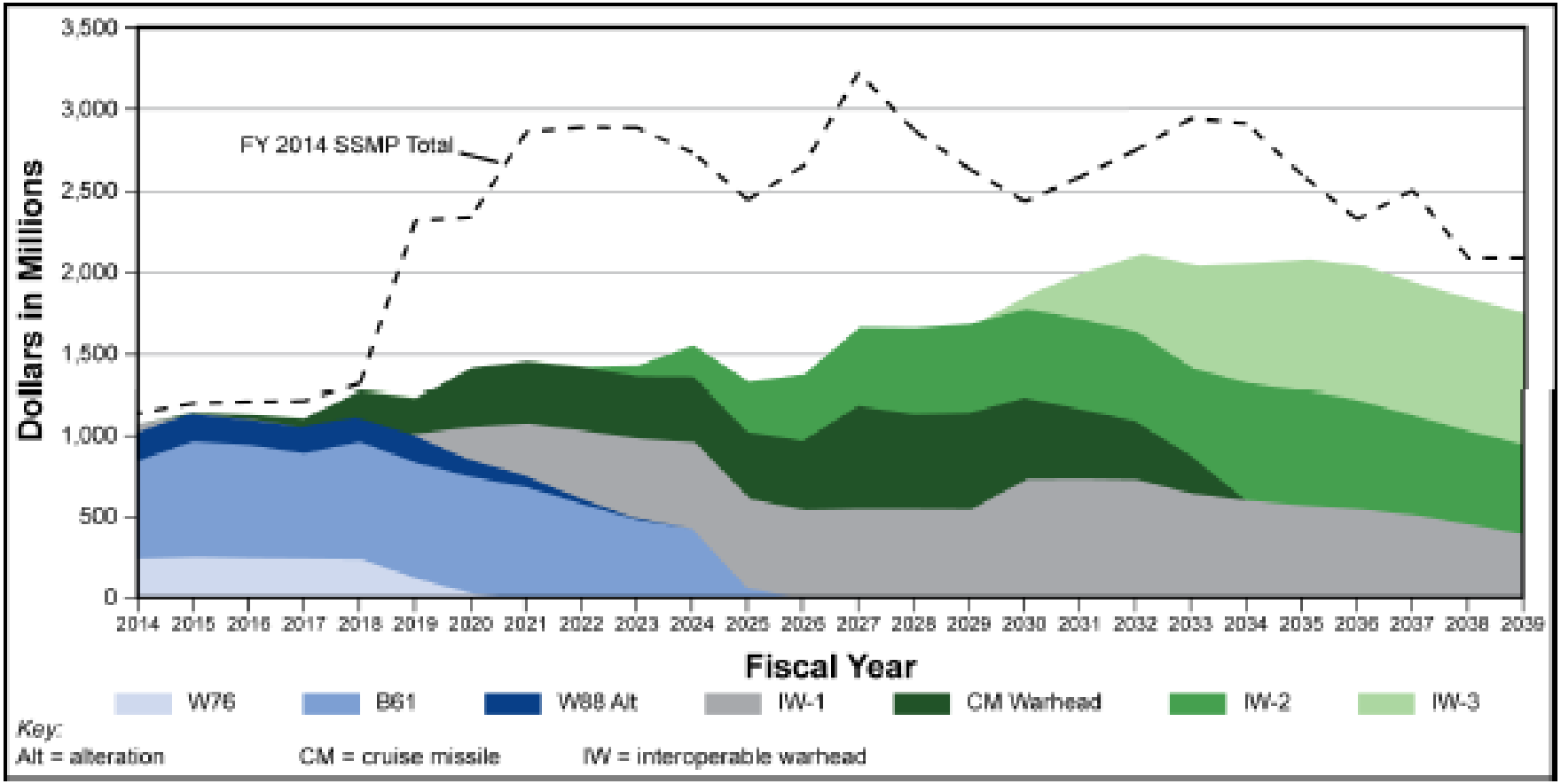
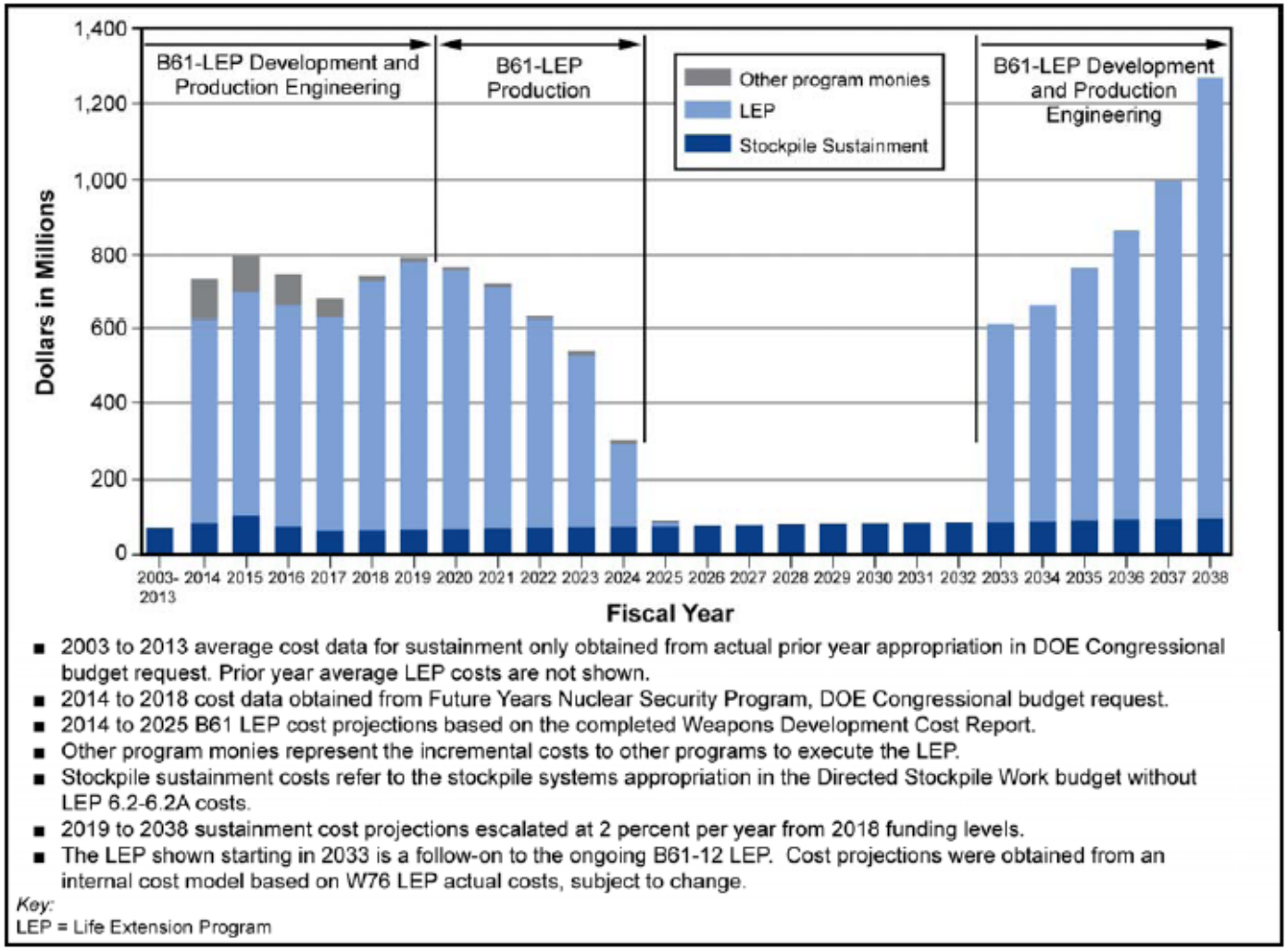


Figure 8–21. Total U.S. projected nuclear weapons life extension costs for fiscal years 2014 through 2039 (then-year dollars)

(This figure updates Figure 8–25 in the FY 2014 SSMP.)

Keeping the labs and production plants busy and in funds: the "15-year touch" for the B61-12 (from NNSA FY2014 SSMP). **This fantasy has already failed.**



- 2003 to 2013 average cost data for sustainment only obtained from actual prior year appropriation in DOE Congressional budget request. Prior year average LEP costs are not shown.
- 2014 to 2018 cost data obtained from Future Years Nuclear Security Program, DOE Congressional budget request.
- 2014 to 2025 B61 LEP cost projections based on the completed Weapons Development Cost Report.
- Other program monies represent the incremental costs to other programs to execute the LEP.
- Stockpile sustainment costs refer to the stockpile systems appropriation in the Directed Stockpile Work budget without LEP 6.2-6.2A costs.
- 2019 to 2038 sustainment cost projections escalated at 2 percent per year from 2018 funding levels.
- The LEP shown starting in 2033 is a follow-on to the ongoing B61-12 LEP. Cost projections were obtained from an internal cost model based on W76 LEP actual costs, subject to change.

Key:
LEP = Life Extension Program

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

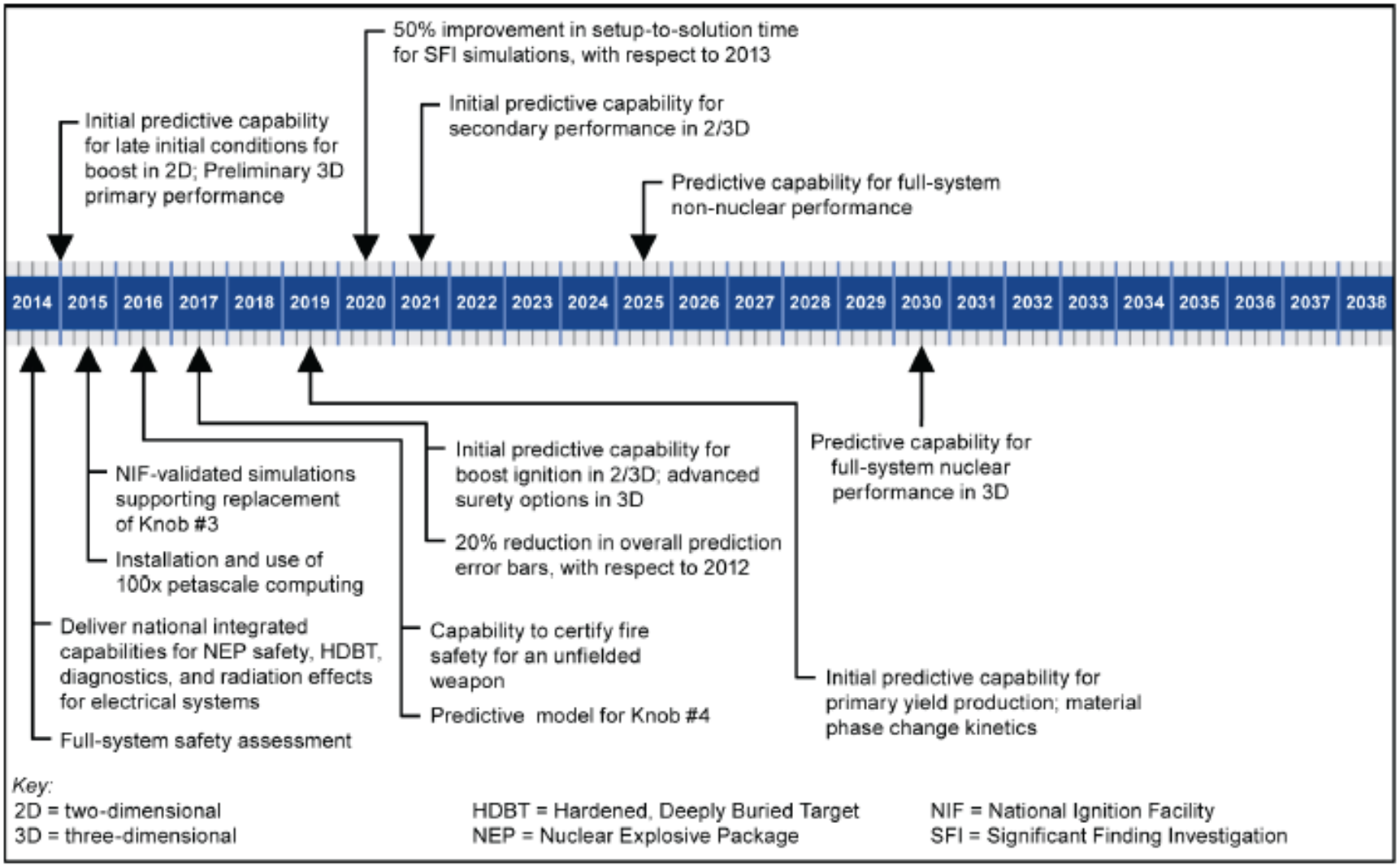


Figure 3–11. Computational milestones and objectives led by the Advanced Simulation and Computing Campaign

Retrenchment (1): Chart presented by Sen. David Vitter (R-LA)

Comparing 1251/1043 Commitments to Appropriations and President's Budget Request for NNSA Weapons Activities
All Numbers ($ Billion)

	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23
Feb 2011 "1251 Report" NNSA Weapons Activities	7.6	7.9	8.4	8.7	8.9	8.9-9.0	9.2 - 9.3	9.4 - 9.6	9.4 - 9.8	9.5 - 10.1	N/A	N/A
Actual appropriations, budget request, FYNSP, and out-years in 1251/1043 report	7.215	6.953	7.719	8.31	8.907	9.261	9.477	9.702	10.558	11.110	11.177	10.767
Difference:	-0.39	-0.95	-0.68	-0.39	0.01	0.26	0.18	0.10	0.76	1.01		

Source: Mr. Rogers, Chairman, Strategic Forces Subcommittee, House Armed Services Committee

Decrease of $2.0B over FY12 to FY14 (i.e., "real money")

NNSA Delays

Program	Projection in 1251 Report	Status as of 2014
W76-1 LEP	Completed in FY2017	2 year delay: completed in FY2019; reduced number of warheads
B61-12 LEP	First Production Unit FY2017	3 year delay: FPU FY2020
W88 alt 370	No date specified	In development engineering phase; delay likely
IW-1 LEP	1251 report addressed intent to study a common W78-W88 warhead	Delayed at least 5 years
LRSO warhead	Low-rate initial production of LRSO to begin c. 2025; no mention of FPU of warhead	Delayed up to 3 years; FPU FY2025-FY2027 timeframe
CMRR-NF	Functionality attainable by FY2020; completion in FY2023	Project terminated; new modular concept under consideration, with perhaps some operational capability by 2027
UPF	Functionality attainable by FY2020; completion in FY2024	Delayed at least 4 years; reduced to 1/3 of original capability; Red Team investigating alternatives to UPF

Source: SASC Minority Staff with CRS & GAO

As of 24 March 2014

Obama's 2014 Retrenchment in Warhead Modernization Aspirations (3)

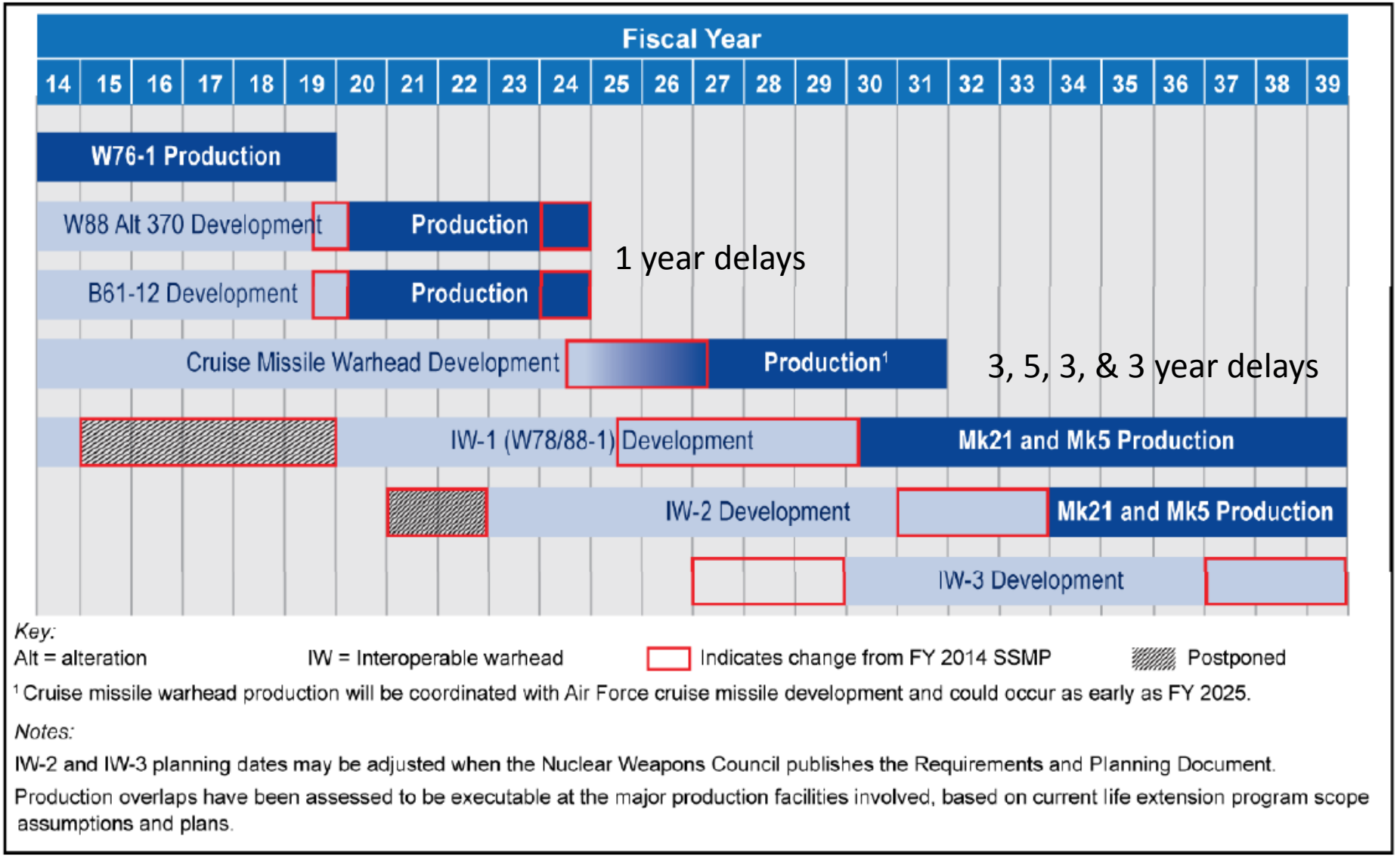


Figure 2–2. National Nuclear Security Administration life extension activities

(This figure updates Figure 2–8 in the FY 2014 SSMP.)

Obama's 2014 Retrenchment in Warhead Modernization Aspirations (4)

Pit production milestones deferred five years

Table 2–4. Pit development timeline

Type	Fiscal Year							
	2014	2015	2016	2017	2018	2019	2020	2021
Pit Production Series	Development Builds		Process Prove-In Builds		Qualification Builds	W87-like WR Builds	W87-like WR Builds	W87-like WR Builds
Number of Builds	8-10		8-10		10	10	20	30

WR = war reserve

Table 2–3. Pit development timeline to achieve 30 pits per year

(This table updates Table 2–4 in the FY 2014 SSMP.)

Type	Fiscal Year											
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Pit Production Series	Development Builds			Process Prove-in Builds			Qualification Builds			War Reserve Builds		
Number of Builds	4	4	4	4	4	4	5	5	5	10	20	30