

The Price of Victory in Cold War Is \$5.8 Trillion for Nuclear Arms and Delivery Systems, Says Panel

In September 1951, Senator Brian McMahon, a Connecticut Democrat who chaired Congress's Joint Committee on Atomic Energy, laid out the argument for spending on nuclear weapons. "The cost of military firepower based on atomic bombs is hundreds of times cheaper, dollar for dollar, than conventional explosives. . . . Since 1945, only three cents out of each American dollar paid for military defense has been spent on atomic weapons. . . . Present expansion plans still assign three cents in the military dollar to those weapons."

But according to a report by 11 scholars at the Brookings Institution, a respected Washington think-tank specializing in political and economic issues, McMahon's statement relied on questionable cost accounting methods that included only the Atomic Energy Commission (AEC) budget and completely excluded any funds for research undertaken by the Department of Defense (DOD), as well as for building and operating strategic bombers, the principal nuclear delivery system at the time. Ironically, Congress's first attempt to assess the cost had been done in response to complaints that too little was being spent on nuclear weapons, and McMahon, who was mainly responsible for keeping nuclear R&D out of military hands, had agreed that the expenditures were "unreasonably and imprudently small." In fact, one month after McMahon's remarks in the Senate, a DOD official admitted that no itemized record of expenditures existed for the rapidly growing nuclear weapons enterprise.

Nearly a half century later, the Brookings panel has issued the first thorough assessment of the price of the US nuclear arsenal and its associated deployment, delivery, defense and dismantlement programs. The 680-page report, *Atomic Audit: The Costs and Consequences of US Nuclear Weapons Since 1940*, released on 30 June, estimates that the bottom line for the huge enterprise from 1940 through 1996 came to a minimum of \$5.48 trillion, reckoned in 1996 inflation-adjusted

dollars. The financial tally includes what was spent on nukes, the laboratories and reactors, the bombers, submarines, missiles and silos; the cost of maintaining secrecy and security, of targeting and controlling the weapons and of defending against bombs that might be hurled at the US; and, not least of all, the price of dismantling the weapons and cleaning up the toxic and radioactive wastes and restoring the environment throughout the weapons complex. It even includes compensation for people harmed in producing and testing nukes over the years.

The US side of the nuclear arms race, as calculated by the Brookings

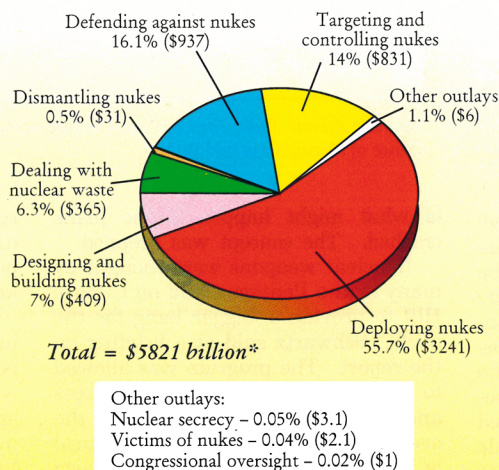
to almost \$22 000 for every individual living in the US today.

The total cost of the program since 1940, says the report, is greater than what has been spent on Medicare and veterans' benefits combined in those years. It slightly exceeds America's welfare expenditures (\$5.3 trillion) in the same period, though it is \$2.3 trillion less than the total outlays on Social Security (\$7.9 trillion). (See table on page 50.)

The audit was undertaken four years ago, but not with the idea of determining whether the US nuclear force had been worth the money to win the arms race with the Soviet Union, said Stephen I. Schwartz, a guest scholar at Brookings and chairman of the project. Rather, the study was designed to set the stage for "an honest and fully informed debate to begin," Schwartz noted. Whether the cost was a reasonable and responsible price for winning the arms race is likely to remain debatable.

Paul Warnke, director of the Arms Control and Disarmament Agency in the Carter Presidency, is on record as saying a public debate on the wisdom of the nuclear buildup "wouldn't have made much difference. Americans were scared of the Soviet Union and would have approved of whatever it took. . . . They believed nuclear arms was like buying an insurance policy and they didn't care about paying the premium." Ronald Reagan entered the White House in 1981 determined to undertake an unprecedented peacetime military buildup, in part because he believed the Soviet Union to be superior to the US in strategic defensive forces and also as a strategy for bankrupting the "evil empire" and thereby forcing an end to the cold war. Though the Soviet Union did indeed collapse in 1991, the Brookings study found no evidence that the Kremlin increased its military spending to match the Reagan Administration's massive outlays for new nuclear weapons, long-range bombers, nuclear submarines, cruise missiles and the Strategic Defense Initiative.

Estimated Costs of US Nuclear Weapons Arms Race, 1940-1996 (in billions of constant 1996 dollars)



*Includes average projected future-year costs for nuclear weapons dismantlement and fissile materials disposition and environmental remediation and waste management.

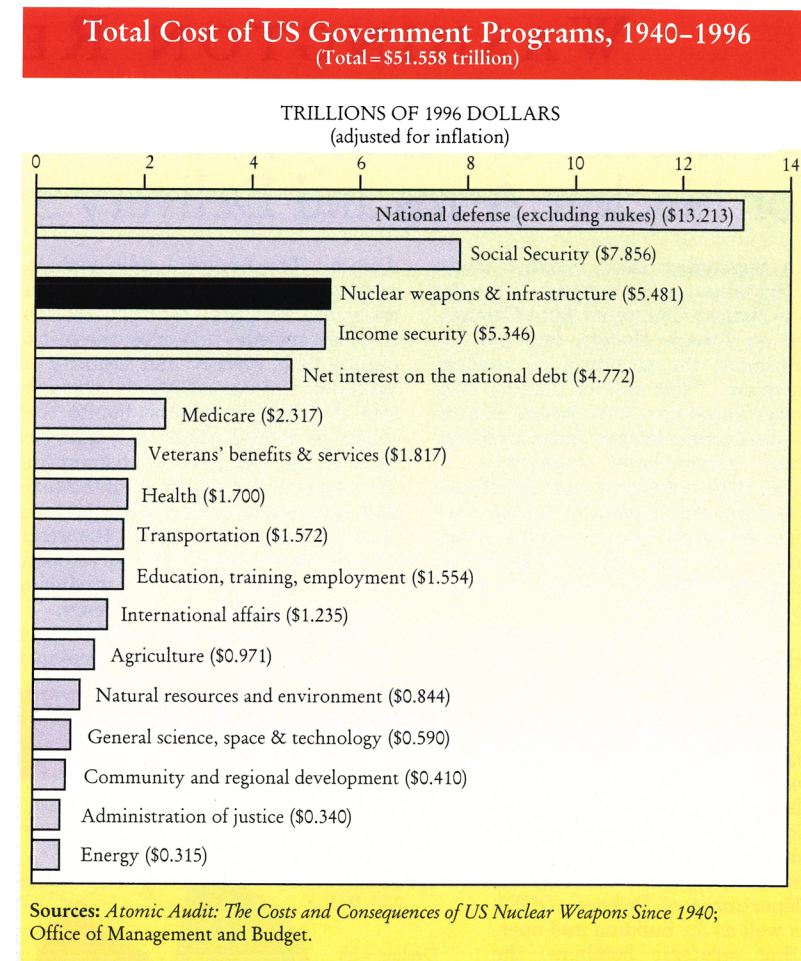
group, represents 29% of the nation's nonnuclear military expenditures in the 1940-96 period and about 11% of all Federal outlays in that time span. During those years, the US spent on average nearly \$98 billion per year developing and maintaining its nuclear arsenal. With the program still growing at the rate of \$35 billion per year, or roughly 15% of the annual DOD budget, the total price tag for the nuclear program as of the start of this year adds up to \$5.82 trillion, according to the Brookings panel. That amounts

During a recent public television documentary on Reagan's life, George Shultz, who served as Reagan's secretary of treasury and later secretary of state, argued that "Americans believed peace was worth any price."

Using archival and newly declassified government documents and data, as well as reports and interviews, the Brookings study describes for the first time how a remarkably wide variety of factors drove the acquisition of a nuclear arsenal far larger than what contemporary military and civilian leaders deemed necessary. The factors included misrepresentation of the Soviet threat and overreaction to it, pressure to maintain nuclear superiority at any cost, pork-barrel politics, excessive secrecy and mistaken assumptions about the cost-effectiveness of nukes. Under such circumstances, there were many opinions about nuclear arms. Lyndon Johnson's Bureau of the Budget, preoccupied with financing the Great Society program in 1964, concluded that an arsenal consisting of more than 450 Minuteman missiles was not only overkill but a waste of money. That year, Defense Secretary Robert McNamara insisted that the right number was 10 000, but he settled for an even 1000. McNamara also declared in 1964 that a total nuclear force equivalent to 400 megatons of TNT would be enough to wage "mutually assured destruction," or simply MAD, against the Soviet Union—though the US stockpile already equaled 17 000 megatons.

The report is sharply critical of successive administrations and Congress for their lack of accountability over the years regarding the size and cost of the nuclear weapons program. One congressional committee in the 1950s, fearing security leaks, refused to be briefed on the size of the nuclear arsenal. The Brookings panel examined how and why key decisions were made involving the costs and consequences of the nuclear buildup from three primitive weapons in 1945 to more than 32 000 at the peak of the US arsenal in 1965. Ultimately, the US built more than 70 000 nuclear weapons. Rivalries among the Air Force, Army and Navy led to the development of 65 varieties of nuclear bombs and warheads between 1945 and 1991 for 116 kinds of delivery systems.

An excess of bombs wasn't the only questionable expense, however. Between 1946 and 1961, for instance, the US spent \$7 billion to develop a nuclear-powered bomber that could remain airborne for days or weeks at a time. Even if the weight problem could be overcome in shielding the crew from the nuclear reactor on board, there was still the issue



of what might happen if the plane crashed. The concept was dropped.

"Nuclear weapons were thought by many in the Pentagon and on Capitol Hill to provide a 'bigger bang for the buck'," Schwartz said at a briefing on the report. The program was allowed to escalate in part because Congress and the public weren't aware of the overall costs in economic, geopolitical or environmental terms. Schwartz wrote in the report that the "impetus to manufacture and deploy large numbers of nuclear weapons gathered strength because nuclear weapons were considered less expensive than conventional forces."

Indeed, defense policies under both Truman and Eisenhower were based on the assumption that nukes were a cost-effective way of countering the Soviet threat. "The general notion that nuclear weapons are less expensive than conventional ones can be traced to the fact that a given amount of fissile material (plutonium or highly enriched uranium) can produce more explosive power than an equivalent amount of conventional high explosives," Schwartz observed in the report. "Therefore, the

reasoning went, while ten pounds of high explosives might kill or injure 100 people, ten pounds of plutonium could kill or injure 100 000 people."

Schwartz cited McMahon's remarks in the Senate chamber on 18 September 1951 as noting that the "hideous weapon" could, if deployed by the thousands, deter Stalin until "his enslaved millions break their chains and join hands with us in peace and brotherhood." McMahon is quoted further: "Money spent upon the atomic bomb could pulverize a dozen enemy war plants at no more expense than destroying a single plant with TNT, to say nothing of the fact that one plane can deliver one A-bomb as against the huge armadas needed to deliver an equivalent cargo of blockbusters."

Thus, by making nuclear weapons the "real backbone" of its military power, the US would be able to strike the enemy anywhere and everywhere so that "if he dares attack he will have no place to hide," McMahon continued. What's more, he declared, nuclear forces, "in all logic and common sense" would mean fewer Americans under arms and a "major reduction in the tens of billions of

dollars we would otherwise spend upon stacks and stacks of conventional armaments."

But others contended that such arguments were flawed. Less than two years later, General Matthew B. Ridgway, the supreme allied commander in Europe, warned that "the new tactical nuclear weapons would not only demand more manpower but would increase the cost of defense to the taxpayer." And his successor, General Alfred B. Gruenther, Eisenhower's bridge-playing crony, cautioned that "new weapons frequently have the effect of adding new problems and new tasks without eliminating those that previously confronted us."

Policy of 'massive retaliation'

Notwithstanding such criticism, Secretary of State John Foster Dulles told the Council on Foreign Relations on 12 January 1954 that the Eisenhower Administration's defense protocols would depend on the US's "great capacity to retaliate, instantly, by means and at places of our choosing" and declared that "it is now possible to get, and share, more basic security at less cost." That policy soon became known as "massive retaliation."

To be sure, designing and developing nuclear warheads was only a small part of the total cost—just 7%, or \$410 billion. Nearly 56% or \$3.2 trillion was spent on a plethora of deployment systems, which were justified by such perceived exigencies as the "bomber gap" of the late 1940s and early 1950s, in response to the first Soviet atomic test in August 1949, the Communist takeover of China later that year and the start of the Korean War in June 1950, and then the infamous "missile gap," which became an issue in the 1960 presidential election.

The first known disbursement of government funds for nuclear weapons took place in February 1940, six months after Einstein's letter to President Franklin Roosevelt, informing him that new research might prove the feasibility of a powerful new weapon. The Army and Navy pooled \$6000 of their funds to pay for preliminary work proposed by Lyman Briggs, director of the National Bureau of Standards. But Briggs never intended the research to be done at his agency, and so immediately turned over the money to Columbia University, where Enrico Fermi and his graduate student, Herbert Anderson, acquired a large quantity of pure graphite and measured its ability to absorb neutrons. By December 1942, Fermi and his group had achieved a graphite-moderated chain reaction in a "pile" assembled under the stands of the University of Chicago's

Stagg Field. After that demonstration, the Manhattan Project, as the huge undertaking to create nuclear bombs was called, took on a life of its own.

During the 1950s, production of nuclear arms grew so rapidly that the AEC, which owned the nuclear complex, became one of the largest industrial enterprises in the US. At the height of the production surge, in 1952 and 1953, the work force in the complex totaled 149 000, of which some 72 000 were permanent workers who designed, tested and produced nuclear weapons.

Though new weapons are no longer being produced or tested, the stockpile still contains nearly 10 000 nuclear weapons, with the equivalent explosive force of about 120 000 Hiroshima bombs, according to the report. The current annual budget for the stockpile stewardship program, which is intended to maintain the safety and reliability of nuclear weapons, is \$4.5 billion, a sum that the Department of Energy told Congress is less than what was spent on an annual basis during the cold war to produce and test new nukes. By contrast, the Brookings analysis indicates that the cost of activities now called stockpile stewardship averaged \$3.6 billion (in 1996 dollars) between 1948 and 1991.

The report questions why the program's budget is higher than it was during the cold war. In remarks at the press briefing on the report, one of the coauthors, William J. Weida, an economics professor at Colorado College in Colorado Springs and onetime adviser on economic policy at the Pentagon, contended that the program now has "huge amounts of money for construction projects that appear to be intended only to ensure continued employment at the national laboratories." Weida said he is working on a followup study that will "conservatively estimate" that stockpile stewardship could be done just as well for half the present price that DOE and Congress have agreed upon.

DOE officials dispute this. Robin Staffin, deputy assistant secretary for nuclear weapons research at the department, calls the stewardship program "balanced, prudent and cost-effective." Weida argues against building the National Ignition Facility at Lawrence Livermore National Laboratory and noted that, now that no new weapons are being designed or built, Livermore could be consolidated with Los Alamos National Laboratory, to reap great savings. In response to such ideas, DOE refers to Clinton's 1997 Presidential Decision Directive 60, which reviewed a wide range of nuclear weapons issues, including weapons targets, force deployment, warhead

production and destruction, and laboratory missions. The directive, which is still classified, concluded that the weapons labs need to remain intact, though the missions of each should be expanded to include work on defense against chemical and biological attack by an adversary.

Without a full understanding of the present and future costs," says the Brookings report in a final section of recommendations, "policymakers are ill equipped to assess the budgetary ramifications of decisions concerning the nuclear stockpile, including the costs of retaining forces scheduled to be dismantled under the START II Treaty should it not be ratified by the Russian Duma." The panel recommends that Congress should pass legislation requiring the President to submit a report detailing the "comprehensive" costs of all government programs related to nuclear weapons activities. While DOE and DOD are clearly responsible for nearly all nuclear arms, more than a dozen agencies, including the White House Office of Science and Technology Policy, the National Security Council, the Environmental Protection Agency, NOAA and NASA, should account for the actions and costs related to nuclear arms.

Recommendation for Presidents

The Brookings panel calls on the President to take a more active part "in formulating nuclear weapons policy and requirements." It notes that "the last (and only) President to immerse himself in the nuclear planning process was Jimmy Carter, a former nuclear submariner. His successors have not been as engaged or attentive."

The panel urges Congress to "strengthen its oversight of nuclear weapons programs by focusing not just on the most expensive or most controversial items in the budget in any given year but rather on the larger strategic picture of how nuclear weapons would be used, how the various elements of the program contribute to deterrence, and what constitutes deterrence in the post-cold war era." The record of Congress from the start demonstrates that it has been "less than diligent in exercising its oversight responsibilities" on nuclear weapons budgets. "The fact that much of the current arsenal was acquired on the basis of arbitrary or strategically irrelevant decisions and justified by post hoc rationales should serve as an important reminder that programs, policies and weapons levels frequently cited as sacrosanct did not necessarily originate from an objective, clearly defined military purpose."

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