

LEARN ABOUT NUCLEAR WEAPONS

The US

In January 2008, the US nuclear arsenal was estimated at 10,400 nuclear warheads. Of these, 4,075 were operational. The operational warheads consisted of 3,575 strategic and 500 tactical nuclear weapons.

Non-operational nuclear warheads, estimated at 6,325, include approximately 1,260 warheads in the responsive force or inactive stockpile. The additional 5,000 nuclear warheads will be transferred to central storage and dismantled, a process that should be finalized by 2023 according to current plans. In addition to these, there are no fewer than 5,000 dismantled nuclear warheads and 12,000 plutonium cores.¹

The American nuclear programme consists of three parts – a so-called nuclear triad: intercontinental ballistic missiles, submarine-launched ballistic missiles, and bombers.

- **Intercontinental Ballistic Missiles (ICBM):** Today, the US Air Force holds approximately 764 active warheads on ICBMs, with an additional 50 in reserve. Under SORT, the goal is to have 500 warheads on 450 missiles in 2012. The US ICBMs are of the Minuteman II type.
- **Submarine-Launched Ballistic Missiles (SLBM):** The US today holds approximately 1,728 active nuclear warheads based on 14 submarines (an additional two are in overhaul) – close to 38 percent of the operational nuclear arsenal. In addition to operational warheads, another 100 warheads are held in reserve. Under the START-I treaty, many warheads have been removed from Trident submarines. At the same time, a program for the replacement and upgrade of warheads on US nuclear-powered submarines (SSBN) is under way. The US SSBNs are of Trident II type. More than half of American submarines are patrolling the Pacific, from where they can reach targets in China, North Korea, and Russia. The American SSBNs have an advanced communication system that allows for underwater communication with military bases, as well as positioning and targeting from an underwater position. The US also has advanced technology to constantly keep track of Russian submarines, while Russia lacks a similar

system for monitoring US SSBNs.

- **Bombers and bomber weapons:** the US nuclear arsenal holds a total of 1,083 nuclear warheads earmarked for delivery by long-range B-2A Spirit and B-52H Stratofortress bombers. These aircraft can carry both strategic bombs and cruise missiles, but the number of cruise missiles is being cut under SORT.
- In addition to the strategic nuclear weapons, the US holds approximately 500 tactical nuclear weapons, with another 790 in inactive reserve.²

Nuclear weapons upgrades

The United States is rebuilding the infrastructure to resume production of nuclear weapons for the first time since 1992. The goal is to build a larger factory with a capacity of approximately 125 plutonium pits per year. The Bush administration has proposed large-scale production of so-called reliable replacement warheads (RRW). The Senate so far (April 2008) has not approved financing for the RRW programme.³ The idea is to replace older nuclear warheads with new warheads, which the Bush-administration calls an issue of security, but critics consider a breach of disarmament obligations. It should be noted that this is a way of retaining nuclear weapons indefinitely, while reducing their numbers.⁴ Within the next years, the warheads on the Minuteman III missile arsenal will be upgraded to almost double their yield. The American nuclear-powered submarines have been upgraded to carry more accurate submarine-launched ballistic missiles with greater yields. More modern missiles are under development and are expected to be in use by 2013. The Air Force is upgrading the communication system in its nuclear bombers. The cruise missiles aboard B-52 bombers are being serviced to extend the life of the missiles until 2030.⁵

Reductions of nuclear arsenals

The US National Nuclear Security Administration (NNSA) announced in October 2007 “an astounding 146 percent increase in dismantled nuclear weapons over the previous year’s rate, almost tripling its goal of a 49 percent increase.” This achievement, according to the NNSA, “sends a clear signal to the world that this administration remains committed to reducing the number of nuclear weapons in the U.S. nuclear stockpile.”⁶ While such a percentage looks impressive, the actual number of dismantled warheads is less so—and the real figures are secret. What NNSA failed to say was that because it dismantled few warheads in 2006, even a 146% increase does not amount to much when compared to the overall size of the stockpile. Furthermore, the rates are miniscule compared to the number dismantled annually in the 1990s. According to independent estimates, approximately 100 warheads were dismantled in 2006 and roughly 250 in 2007, about the same number as in 2003. That is a far cry from the average of almost 1,800 warheads dismantled per year during the 1990s. At the current rate, the backlog of retired nuclear weapons—even including the “nearly 50 percent” cut in the size of the overall

stockpile to be accomplished by 2012 – will take through 2023 to complete, the lowest dismantlement rate of any US administration since the Eisenhower administration.⁷

At the 2005 Review Conference of the NPT, US Ambassador Jackie Sanders reported on a number of US nuclear US disarmament activities, including the following:⁸

- Reduced the number of deployed strategic warheads to below 6,000 in December 2001 under the START I treaty.
- Eliminated 1,032 launchers for strategic ballistic missiles, 350 heavy bombers, and 28 ballistic missile submarines.
- Dismantled approximately 13,000 nuclear weapons since 1988
- No production of weapons-grade plutonium since 1988
- Nuclear testing moratoria since 1992
- Removal of 200 tons of fissile materials from the military stockpile
- Under SORT , US deployed strategic nuclear weapons will be reduced by 80 percent by 2012.

Role of nuclear weapons in national security strategy

The key documents on current US nuclear policy are: Nuclear Posture Review (January 2002), National Security Strategy (September 2002), and National Strategy to Counter Weapons of Mass Destruction (December 2002). Recent security policy documents such as these maintain the role of nuclear weapons in US national security policy, including the use of nuclear weapons in “immediate, potential or unexpected contingencies” against a number of named countries including Iraq, Iran, and North Korea. A common denominator for all documents is the lowered threshold for nuclear weapons use. The US shows a preparedness to use nuclear weapons even against enemies without nuclear weapons, or even as a pre-emptive action.

In March 2005, the Department of Defense posted a controversial draft revision of its doctrine for nuclear weapons operations on its website. The draft used unusually clear language regarding policies on the use of nuclear weapons in a wide variety of circumstances other than retaliation for nuclear weapons use by another state. After much controversy, the DoD withdrew the draft nuclear doctrine documents and cancelled the revision of the doctrine.⁹

Fissile material

Military Stocks of Fissile Materials

Plutonium: 47 tons

HEU: 700 (+/- 50) tons¹⁰

Declared Excess

Plutonium: 52.5 tons

HEU: 174.3 tons originally; 123 tons remaining¹¹

Unseparated Civil Plutonium: 403 tons

Separated Civil Plutonium: 4-5 tons declared excess, mostly produced in UK civil reactors decades ago¹²

Civil Highly Enriched Uranium

End of 2003: 124 tons

Projected for 2020: 22 tons¹³

This means the US holds large stockpiles of fissile materials, which can – if desired – be used to produce new nuclear weapons. 20 kilograms of highly enriched uranium (HEU) is enough to build a primitive nuclear device. The US holds close to 1,000 tonnes of HEU in its stockpile. Large amounts of weapon grade material increase the risk of the material ending up in the wrong hands – but clearly also makes it possible for the state itself to produce new nuclear weapons or to upgrade existing warheads. The US has not produced military plutonium since 1988, but still has large stockpiles of plutonium – both military and civilian. The atom bomb that was dropped over Nagasaki in 1945 consisted of about six kilograms of plutonium. Today, nuclear weapons of that small size are hardly even produced – but American stockpiles hold fissile material enough to produce thousands of full-size modern nuclear warheads.

1 Norris, Robert C and Kristensen, Hans M. *US Nuclear Forces 2008*. Nuclear Notebook, Bulletin of the Atomic Scientist vol 64, Nr. 1 2008, p. 50-53, 58

2 Ibid.

3 Ibid.

4 Model Nuclear Inventory <http://www.reachingcriticalwill.org/about/pubs/Inventory07/US.html>

5 Ibid.

6 Reaching Critical Will <http://reachingcriticalwill.org/political/1com/1com07/statements/9octusa.pdf>

7 Norris, Robert C and Kristensen, Hans M. *US Nuclear Forces 2008*. Nuclear Notebook, Bulletin of the Atomic Scientist vol 64, Nr. 1 2008, p. 50-53, 58

8 Reaching Critical Will <http://www.reachingcriticalwill.org/legal/npt/RevCon05/MCI/USA20.pdf>

9 Model Nuclear Inventory <http://www.reachingcriticalwill.org/about/pubs/Inventory07/US.html>

10 Institute for Science and International Security
http://www.isis-online.org/global_stocks/end2003/military_pu.pdf

11 Institute for Science and International Security
http://www.isis-online.org/global_stocks/end2003/military_excess_heu.pdf

12 Institute for Science and International Security
http://www.isis-online.org/global_stocks/end2003/plutonium_watch2005.pdf

13 Institute for Science and International Security
http://www.isis-online.org/global_stocks/end2003/civil_heu_watch2005.pdf