

U.S. Nuclear Policy and World Nuclear Situation

Presentation by

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Overview

- **World Nuclear Forces**
- **US Nuclear Policy**
- **US Nuclear Stockpile**
- **The NPR and the Future**
- **Conclusions**

World Nuclear Forces 2004

Status 14 years after the Cold War:

- Global stockpile is 44% of Cold War peak in 1986 (28580 versus 65000)
- Eight countries have nuclear weapons
- All continue to modernize their nuclear arsenals

World Nuclear Forces 2004

	Strategic	Tactical	Total
United States	5474	680	6154
Russia	4400	3400	7800
France	348	n.a.	348
China	282	120	402
Israel	<200	n.a.	<200
United Kingdom	185	n.a.	185
Pakistan	30-50	n.a.	30-50
India	30-40	n.a.	30-40
Total	10979	4200	15179

Note: Only operational warheads are counted. The United States has an additional 4204 inactive warheads in reserve for a total stockpile of 10358 warheads. Russia has an additional 9200 non-operational warheads for a total stockpile of approximately 17000. Total world stockpile is estimated at some 28583 warheads. The warhead of Israel, India and Pakistan are thought to be only partly operational.

US Nuclear Policy

What hasn't changed?

- 2001 NPR reaffirms importance of nuclear weapons
- Potential opponents continue to be Russia, China, North Korea, Iran, Syria and “n”
- Allied security assurances continue (NATO, Japan, South Korea)
- Massive retaliation and first strike options retained

US Nuclear Policy

What has changed?

- Less focus on Russia
- Iraq and Libya are 'gone'
- China is 'rising star'
- Preemption is real (new plans)
- Capability-based vs. threat-based planning
- Arms control is dormant (for now)

US Nuclear Policy

What has changed it?

- End of Cold War (cuts)
- Iraq and proliferation
- 1992 NUWEP
- 1994 NPR
- 1997 PDD-60
- 1999 NUWEP
- 2001 NPR

US Nuclear Posture

How has it affected the posture?

- Reductions in operational warheads
- Consolidation of infrastructure and capabilities
- Modernization of remaining forces to maintain enduring arsenal and maximum targeting flexibility
- Reduction of targets in war plan but geographic distribution of targets has increased
- Warplanning overhauled: SIOP is dead (new beast is called OPLAN 8044) and replaced with the “Living SIOP” (a.k.a. adaptive planning)
- Strategic role for missile defense and advanced conventional forces increased

US Nuclear Posture

Strategic Forces

- 517 ICBM (500 MM3 / 17 MX)
- 15 SSBNs (14 from October)
- 115 bombers (72 PMI)

Non-strategic Forces

- Fighter bombers (US and Europe)
- Tomahawk (on selected SSNs)

US Nuclear Posture



ICBMs

- 500 Minuteman III
- 17 MX/Peacekeeper
- Life-extension programs
- De-MIRV stopped after one Wing
- Warhead mix (W87 moves to MM3)
- Minuteman Elite from 2011
- New ICBM in 2018

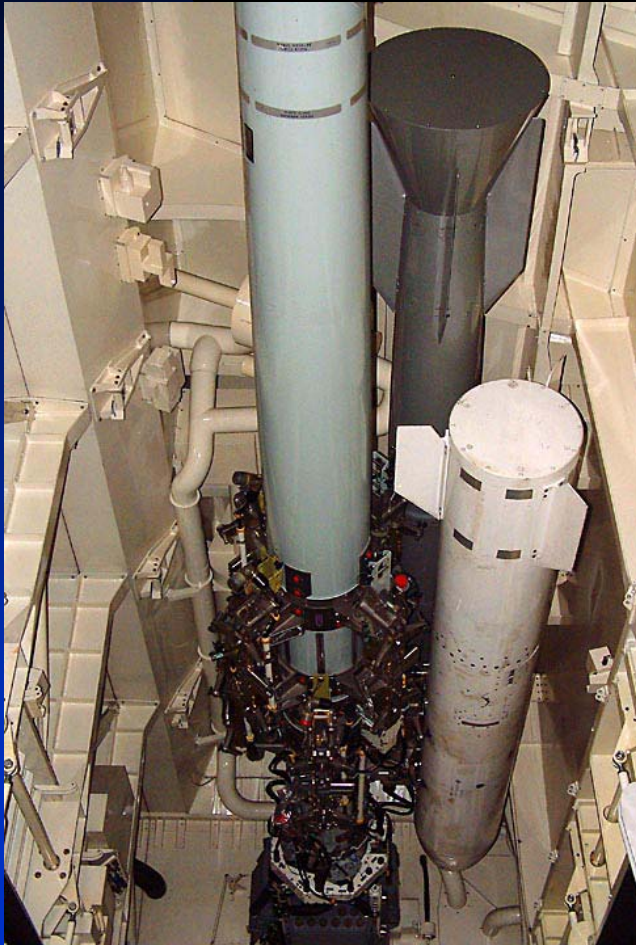
US Nuclear Posture



SSBNs

- 14 SSBNs (Bangor/Kings Bay)
- D5/W88 capability in Pacific from 2002
- All-D5 force from 2006
- Life-extension (through 2042)
- D5 Live Extension
- W76 upgrade to W76-1 (new fuze)
- RV “GPS-like accuracy” program

US Nuclear Posture



Bombers

- 21 B-2 and 94 B-52
- ALCM/ACM (W80-1)
- B61-7 / B61-11 (B-2 only) / B-83
- Adaptive planning upgrade
- W80-1 modernization (W80-3)
- B-2 RNEP carrier
- New bomber under development

US Nuclear Posture

Fighter Bombers

- F-15E / F-16C/D
- B61-3/4/10 (CONUS / NATO)
- Joint Strike Fighter nuclear



US Nuclear Posture



Tomahawk TLAM/N

- All stored on land (Bangor and Kings Bay)
- SSN use, periodic certification
- Of some 300 missiles, 100 active and 200 inactive
- Life-extension program
- W80-0 modification W80-2

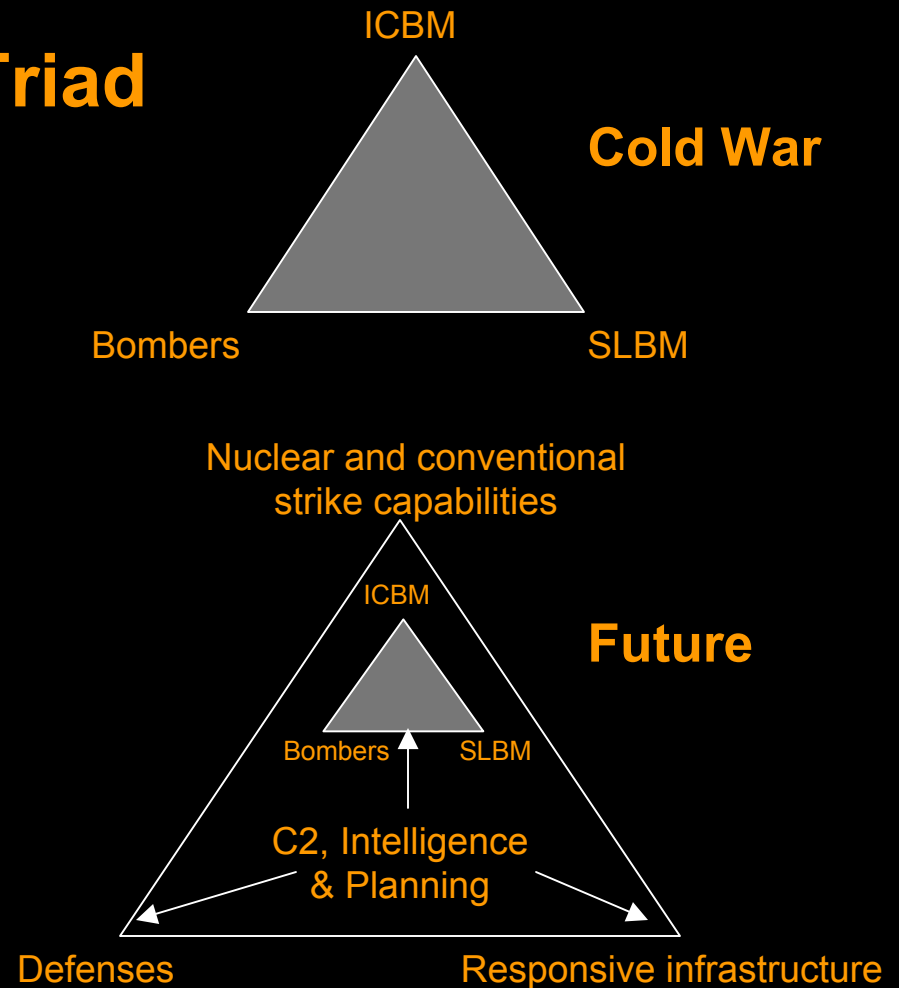
The NPR and the Future

What the 2001 NPR did:

- Reaffirmed importance of nuclear weapons in US nuclear policy
- Reaffirmed need for 'old' Triad
- Called for new nuclear capabilities
- Increases capability of nuclear weapons infrastructure
- Increases role of missile defense and advanced conventional forces

The NPR and the Future

The 'New' Triad



The NPR and the Future

Where did NPR Force Level Come From?

- **NPR/SORT: 1700-2200 “operationally deployed strategic warheads” by 2012**
- **SAC / STRATCOM force structure studies from 1991-1996**
- **NPR/SORT is START III but**
 - **minus de-MIRV of ICBMs**
 - **minus “overhaul” warheads**
 - **minus transparency / irreversibility**
 - **minus limits on non-strategic weapons**

The NPR and the Future

New nuclear capabilities pursued under the Advanced Concepts Initiative (ACI):

- **Additional yield flexibility**
- **Improved earth penetrating weapons (EPWs)**
- **Warheads that reduce collateral damage**
- **ACI teams reestablished at LANL, LLNL, SNL, NNSA**

The NPR and the Future

Advanced Concept warheads currently being studied:

- Reliability replacement warhead concept (LANL)
- Robust Nuclear Earth Penetrator
- Air-launched cruise missile warhead
- Agent Defeat warhead

The NPR and the Future

Earth-penetrators and low-yield

- Not the same thing
- Current EPW is B61-11 (400 kt)
- Potential options (RNEP) include:
 - B61 (variable yields 0.3-400 kt)
 - B83 (low to 1,200 kt)

The NPR and the Future

US Official Yield Definitions

- very low: less than 1 kiloton
- low: 1 kiloton to 10 kilotons
- medium: over 10 kilotons to 50 kilotons
- high: over 50 kilotons to 500 kilotons
- very high: over 500 kilotons

The NPR and the Future

Current US Warhead Inventory With “low-yield” capability:

Warhead	Yields	Number
B61-3	four yields: .3, 1.5, 60, 170 kt	396
B61-4	four yields: .3, 1.5, 10, 50 kt	412
B61-7	four yields up to 360 kt	441
B61-7	four yields: .3, 5, 10, 80 kt	208
W80-0	5 to 150 kt	304
W80-1	5 to 150 kt	1827
B80-0	low to 1200 kt	304
B80-1	low to 1200 kt	329
Total		4221

The NPR and the Future

Stockpile Outlook 2004-2012

	2004	2012	Reduction
Strategic	8655	5112	3543
Non-strategic	1703	844	859
Total	10358	5956	4402

The NPR and the Future

Missile Defense

- Complements vs. replaces nukes
- Can never be proven 100% effective
- Offensive-defensive integration will provide new offensive capabilities
- Undercuts effectiveness of Russian and Chinese deterrent forces
- Will trigger countermeasures

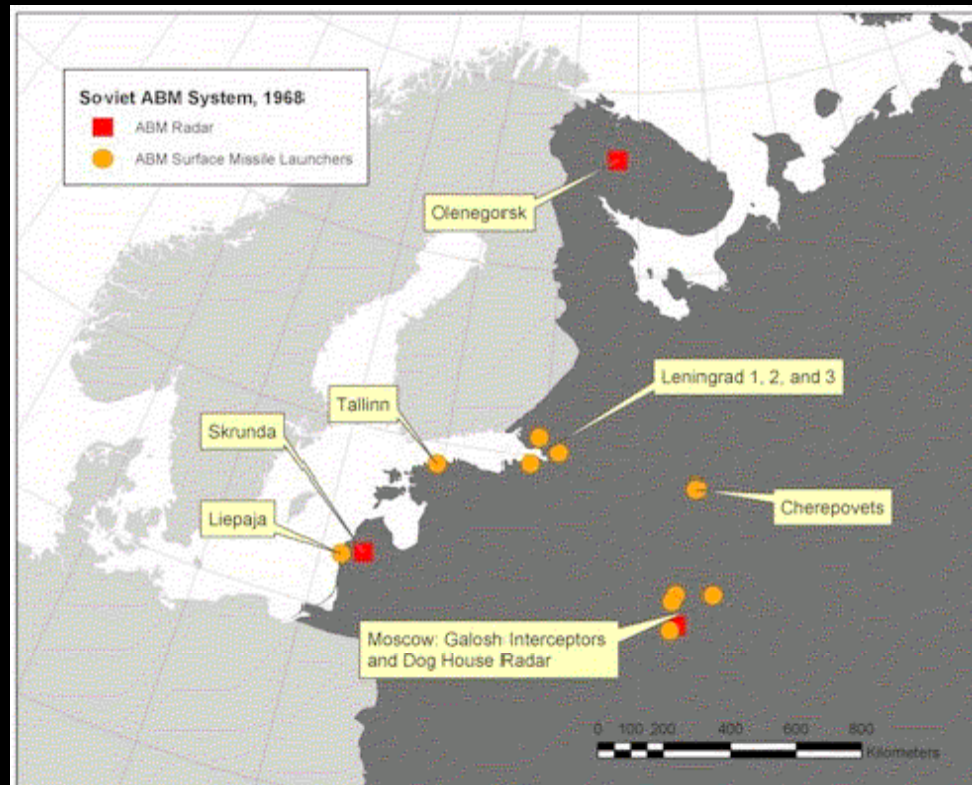
The NPR and the Future

Missile Defense: Lessons Learned

- Soviet limited missile defense system triggered creation of massive US nuclear strike plan during Cold War
- Even limited system could upset effectiveness of other strike plans
- All facilities were nuclear targets (not just interceptors)
- Triggered US development of MIRV

The NPR and the Future

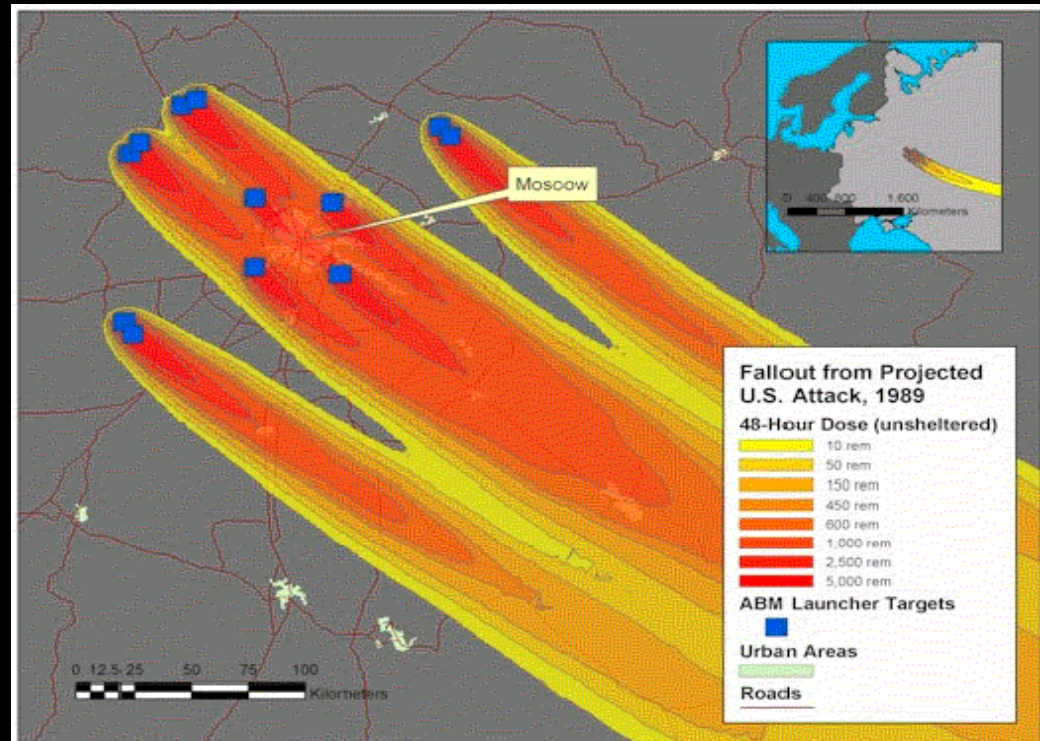
Soviet Missile Defense System (1968)



Source: Hans M. Kristensen, et al., "The Protection Paradox," *Bulletin of the Atomic Scientists*, March/April 2004.

The NPR and the Future

Current US Targeting of Russian Missile Defense System (1989 simulation)



Source: Hans M. Kristensen, et al., "The Protection Paradox," Bulletin of the Atomic Scientists, March/April 2004.

The NPR and the Future

Conclusions

- NPR reaffirms large nuclear posture
- “Living SIOF” and adaptive planning will facilitate additional missions against old and new enemies
- Stockpile reduction is in reserve not deployed arsenal, compared with START III level
- Large opaque upload capacity will remain in reserve (about 100%)
- Missile defense will complement not replace nuclear forces and trigger countermeasures
- Conflict with NPT regime looming