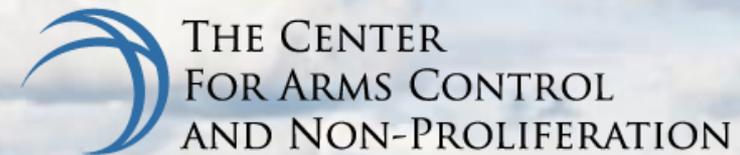


U.S. Nuclear Deterrent: *Does Size Matter?*

Greg Terryn

Scoville Fellow



How Large is the U.S. Arsenal?

- 4,800 Nuclear Warheads
- 1,400 Megaton yield
- 87,500 X Hiroshima blast

1/10th of our arsenal:
enough to devastate top 50 most
populated U.S. cities

Defining the Arsenal's Purpose:

- 2010 Nuclear Posture Review:
 - “*The fundamental role of U.S. nuclear weapons, which will continue as long as nuclear weapons exist, is to deter nuclear attack on the United States, [its] allies, and partners.*”
 - What nuclear weapons don't address:
 - ISIS, Ebola, Afghanistan, Boko Haram, Drug Trafficking, Climate Change, Cyber Warfare

Counterforce v. Minimal Deterrence

Counterforce

- What it is:
 - A disarming strike capability intended to eliminate an adversary's nuclear weapons.
- Requires:
 - Large arsenal
 - 2 warheads per 1 target
 - Hair-trigger status

Minimal Deterrence

- What it is:
 - A credible retaliatory capability intended to deter a launch.
- Requires
 - Survivable arsenal
 - Not necessarily high-alert status

A Changing Threat

- Changing Russian-U.S. Relationship
 - **Lt. Gen James Kowalski**, Vice Commander of the U.S. Strategic Command: A Russian nuclear attack on the US is such “*a remote possibility*” that it is “*hardly worth discussing.*”
- 2013 Analysis of Nuclear Deterrence Requirements
 - Conducted by Depts. of Def., Energy, & HS and coordinating with intelligence community
 - Found U.S. could reduce arsenal by 1/3 safely
 - Unilaterally if necessary
 - Corroborated by Joint Chiefs of Staff

What Minimal Deterrence Could Look Like

# of Warheads:	Study Conducted By:	Details:
900	Gen. James Cartwright , (former VC of JCS) Amb. Thomas Pickering Amb. Richard Burt (Then) Sen. Chuck Hagel Gen. (Ret.) Jack Sheehan	<ul style="list-style-type: none">• 450 warheads deployed on nuclear subs and bombers• 450 in Reserve• 2012 Study
500	Hans Kristensen , Federation of American Scientists Ivan Oelrich , Federation of American Scientists Robert Norris , Natural Resource Defense Council	<ul style="list-style-type: none">• 500 warheads on ICBMs and Bombers• 2009 Study
1000	Amb. James Goodby Sidney Drell , Stanford	<ul style="list-style-type: none">• 500 warheads on ICBMs, nuclear subs, and bombers• 500 in reserve “responsive force”• 2005 Study
311	James Forsyth Jr. , USAF Col. B. Chance Saltzman Gary Schaub Jr. , Air War College	<ul style="list-style-type: none">• 100 ICBMs• 12 Nuclear Subs (16 warheads each)• 19 Bombers with an ALCM• 2010 Study

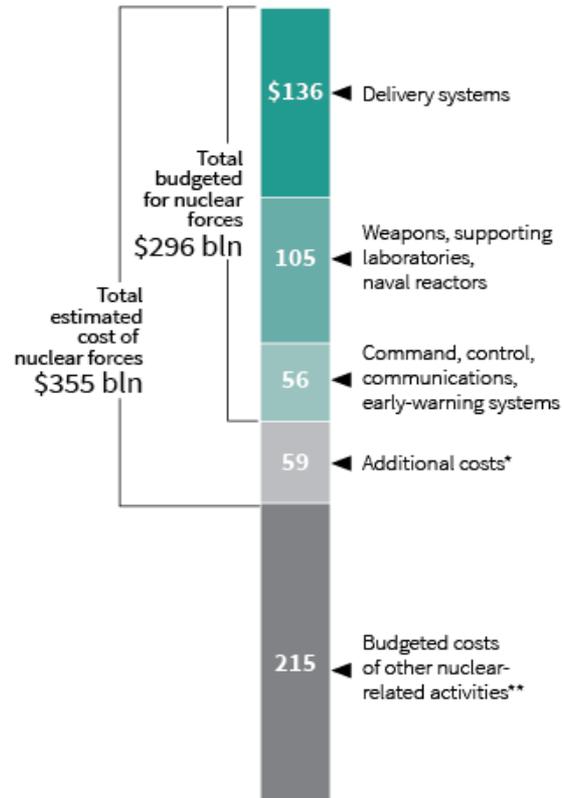
Benefits of Minimal Deterrence

Increased Safety

Reduced Cost

**THIS JOB
HAS WORKED
DAYS
WITHOUT AN
ACCIDENT**

COST OF U.S. NUCLEAR FORCES, 2014 TO 2023
\$ Billions



Source: S. Culp, 20/10/2014 - Reuters

Safety & Security

- **Lt. Gen James Kowalski**, Vice Commander of the U.S. Strategic Command: *“The greatest risk to my force is an accident. The greatest risk to my force is doing something stupid.”*

Inability to maintain high standards throughout a large arsenal

- Firing of Air Force Commanders and Officers
- Cheating in Navy and Air Force
- Security Failures:
 - “Bent Spear”
 - Dropped wrench
 - Bombing North Carolina

High Alert = Reduced Decision Times

Reducing Costs

- **“Modernization Mountain”**
 - \$355 billion over the next decade
 - \$1 trillion over the next 30 years
- **Tough Trade-offs**
 - National Defense Panel Review 2014
 - *“The costs [of recapitalizing the nuclear triad] would likely come at the expense of needed improvements in conventional forces.”*

Conclusion

Note: This is NOT nuclear disarmament

U.S.' Overstocked Nuclear Arsenal:

- Addresses a threat that no longer exists
- Presents heightened risks without added value
- Unaffordable

Minimal Deterrence:

- Adjusts size to meet security needs
- Reduces costs
- Mitigates the inherent safety risks associated with counterforce strategy