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Taking Stock:
New START Implementation and Outlook

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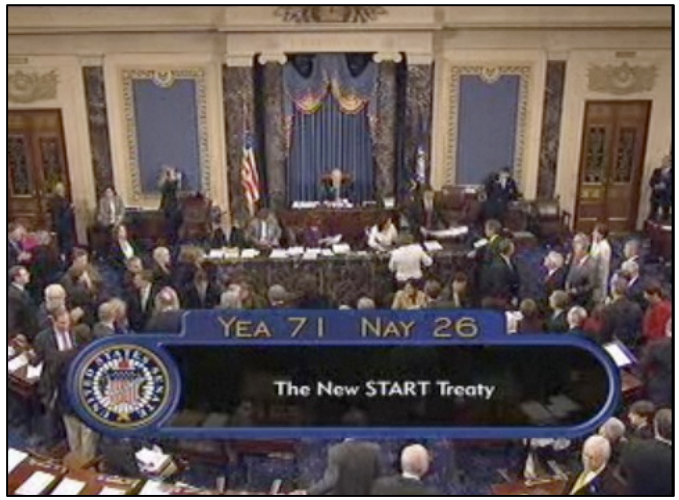

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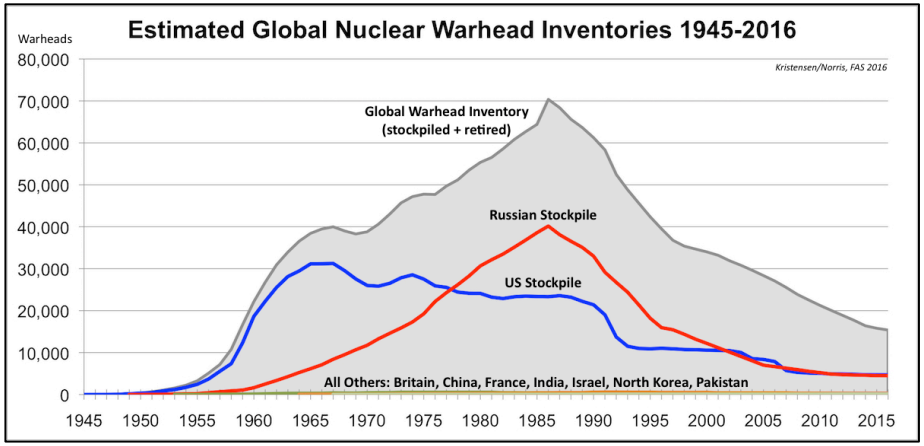
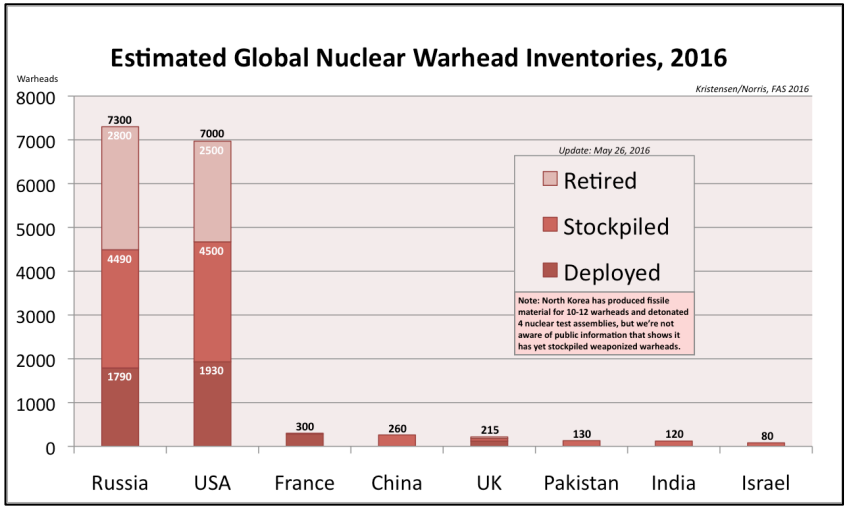
Nuclear Arsenals: Global Inventories





More than 125,000 warheads produced since 1945

Peak of 64,500 stockpiled warheads in 1986 (70,300 if including retired warheads)

- US stockpile peaked early (1967)
- Russian stockpile peaked late (1986)

Enormous reductions since 1986 peak:

- ~54,000 warhead stockpile reduction
- ~47,000+ warheads dismantled

~10,000 warheads in stockpiles (~15,000 if counting retired warheads awaiting dismantlement)

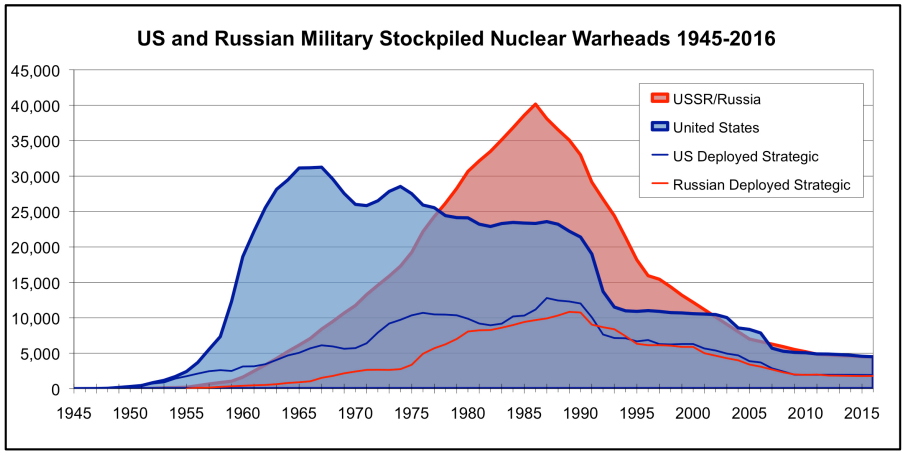
US and Russia possess 90% of global inventory (94% if counting retired warheads); **each has more than 4 times more warheads than rest of world combined**; 15 times more than third-largest stockpile (France)

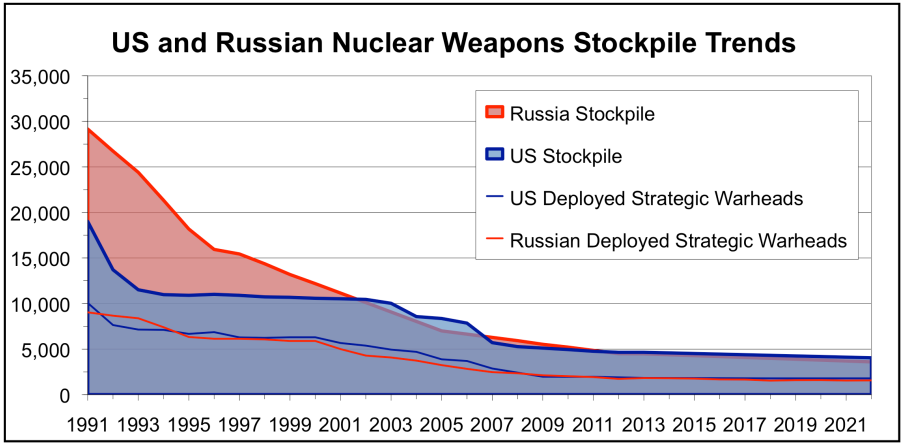
Decreasing: US, Russia, Britain, France

Increasing: China, Pakistan, India

Israel relatively steady; North Korea trying

Nuclear Arsenals: Trends





With more than 90% of world inventory, US and Russia have special responsibility to reduce

Reduction of deployed strategic warheads from some 23,000 in 1989 to 3,700 in 2016 (New START counts 3,216)

Readiness level of remaining strategic forces is high: about 1,800 warheads on prompt alert

No official de-alerting, but significant reduction of overall alert numbers: heavy bombers de-alerted, US ICBMs and SLBMs downloaded, non-strategic forces de-alerted

Trend: pace of reductions is slowing

US cut only 400 warheads in 2010-2014, compared with 3,500 warheads cut in 2005-2009

Russia cut an estimated 1,100 warheads in 2010-2014, compared with 2,600 in 2005-2009

Instead of continuing pace or increasing reductions, US and Russian stockpiles appear to be leveling out for the long haul; new emphasis on modernization

New initiatives needed to prevent stalling of arms control

New START Treaty Summary

Three aggregate limits (no sub-limits):

No more than 800 total strategic launchers

No more than 700 deployed strategic launchers

No more than 1,550 warheads on deployed strategic launchers (actual warhead numbers on ICBMs/SLBMs, fake count of one bombs per bombers); significant upload capacity remains

Data Exchange:

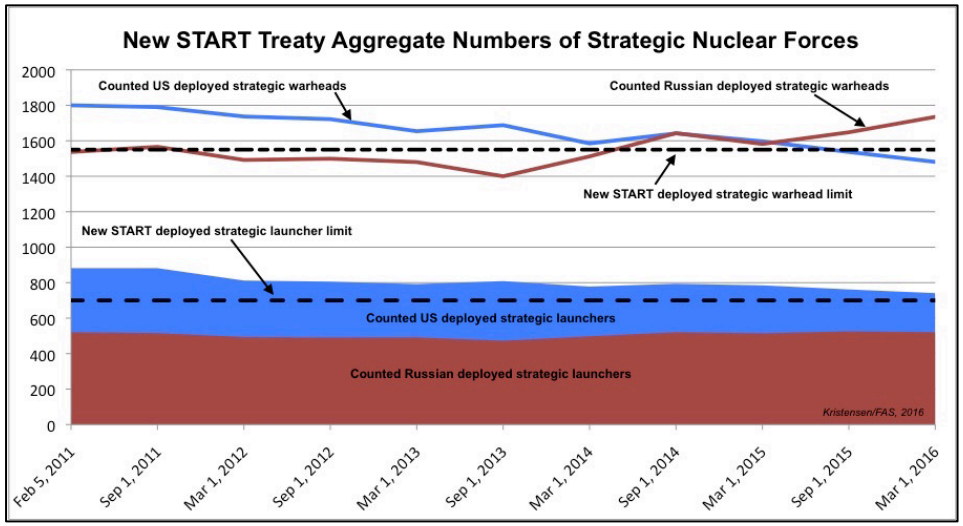
Every six moths: force structure status

Notifications: 11,436 (as of 7/28/16)

Inspections:

Simpler version of START inspection regime

18 on-site inspections annually (10 to deployed forces and 8 to non-deployed forces): 201 inspections conducted since 2011 (as of 7/28/16)



History:

April 8, 2010: Signed

December 22, 2010: Senate Advise and Consent

February 5, 2011: Entry Into Force

February 5, 2018: Entry Into Effect

February 5, 2021: Expires (unless extended for 5 years)

February 5, 2026: Expires (if extended for 5 years from 2021)

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US Implementation Status

Since Feb 2011: reduction of 141 deployed launchers with 319 warheads. 41 deployed and 37 non-deployed launchers to go.

Dropped below warhead limit in late-2015

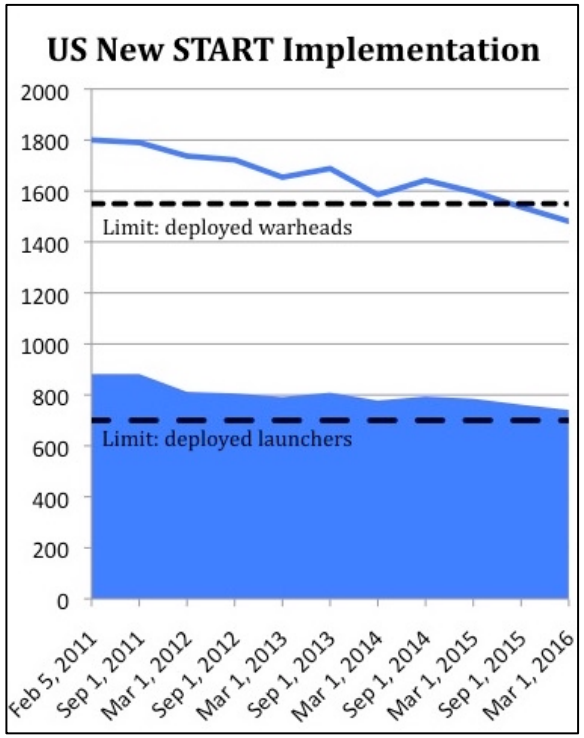
2011-2015: Phase One - eliminated "phantom launchers" (B-1B, B-52G, empty silos)

2015-2018: Phase Two - reduction of real weapons:

- Bombers: De-nuke 30 operational and 12 non-operational B-52Hs. Leaving 41 nuclear for total of 60 deployed nuclear bombers
- ICBM: Offload 50 MM3s from silos, leaving 400 (all single warhead; ½ can still MIRV)
- SSBN: Reduce tubes from 24 to 20, leaving no more than 240 deployed SLBMs on 12 operational submarines

100 Russian inspections of US forces since 2011

New START is also long-term planning force level



Images top-down: last B-52G destroyed (111 retired B-52s visible at Davis-Monthan AFB as of end-2015); ICBM silo elimination at Malmstrom AFB; ICBMs removed from 50 silos; first B-52H de-nuclearized at Barksdale AFB; SSBN tubes to be reduced from 24 to 20 per sub.

Russian Implementation Status

Since Feb 2011: reduction of 0 (zero) launchers and increase of 198 warheads

Russia was *below* treaty limit for launchers and warheads when treaty entered into force in 2011

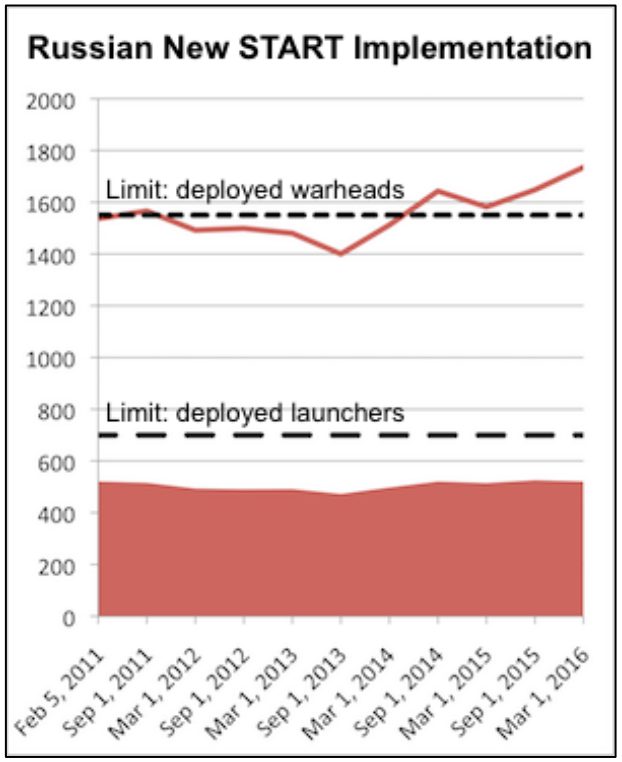
Russia currently has 220 deployed launchers *less* than the United States and 179 less than treaty limit

No reduction of deployed launchers required, but 56 non-deployed launchers must be eliminated (currently 39% of Russian total launchers are non-deployed; US ratio is 16%)

Deployed warhead level has *increased* by 375 from 1,400 in 2013 to 1,735 in 2016

Reduction of 185 deployed warheads needed to meet limit by 2018

Might have to create formal hedge of non-deployed missile warhead



101 US inspections of Russian forces since 2011

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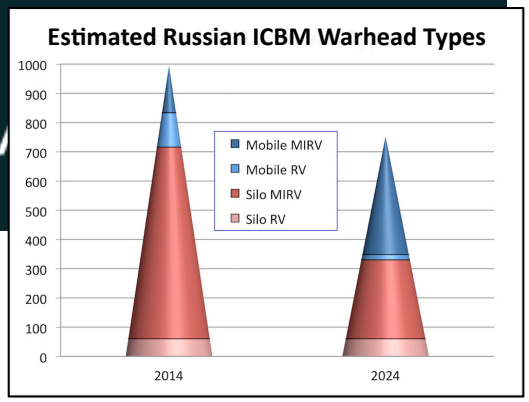
Russian Force Structure Outlook

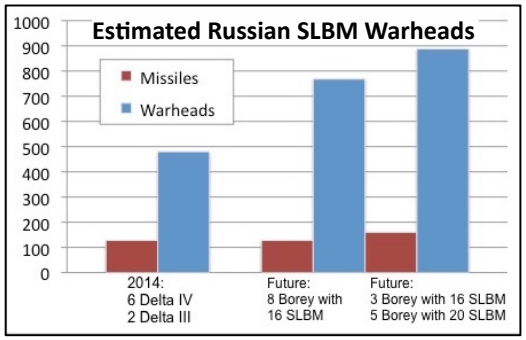
Despite what you might hear, Russian nuclear forces are not in a "build-up"

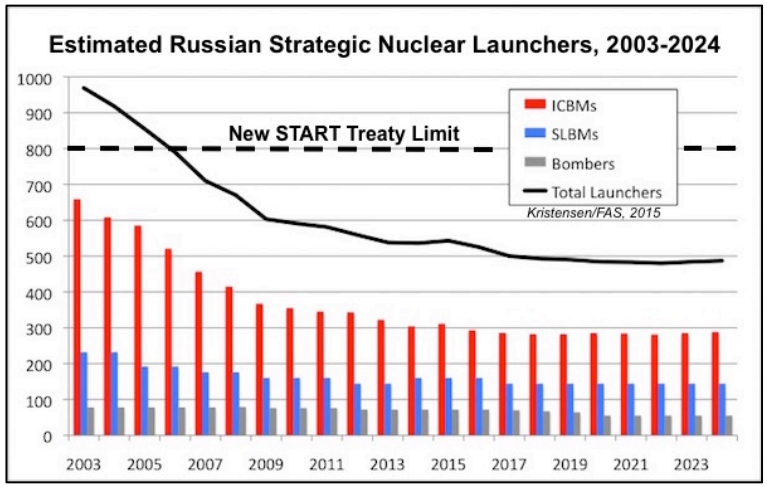
Russia is phasing out Soviet era launchers (SS-18, SS-19, SS-25, SS-N-18) and replacing them with *fewer* new ones; process began in late-1990s

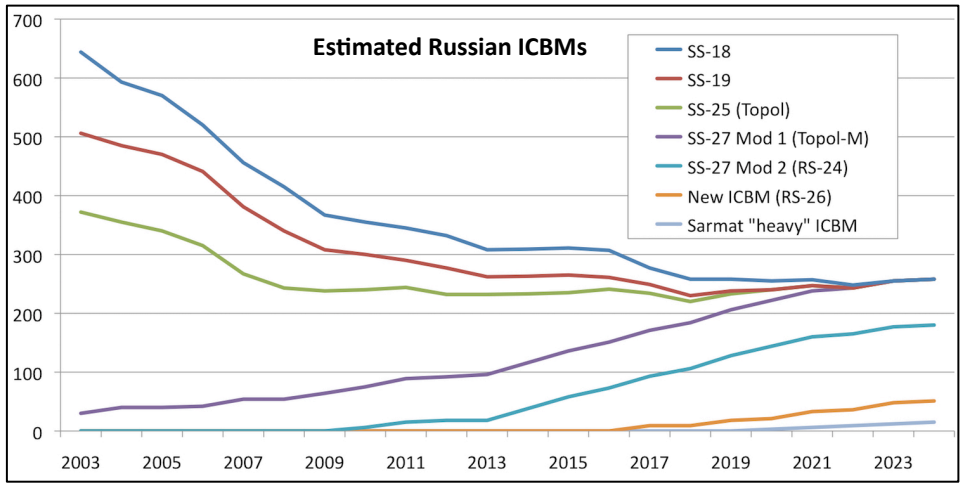
Because Russia has fewer deployed *launchers*, it is compensating for the disparity by deploying more *warheads* on each launcher than the United States; implications for crisis stability

Trends: greater share of ICBM warheads mobile; greater share of warheads at sea (might have to create formal SLBM warhead hedge to stay below New START limit)









Perceptions of Treaty Value

> "Based on the information available as of December 31, 2015, the United States certifies the Russian Federation to be in compliance with the terms of the New START Treaty."
>
> "The United States does not assess that there is a strategic imbalance between the United States and the Russian Federation."
>
> *US Department of State, Annual Report on Implementation of The New START Treaty, January 2016*

United States:

- Limit on launchers (break-out potential)
- Importance of verification regime
- "providing predictability about the Russian nuclear arsenal at a time of continued poor relations with Moscow." (*Gottemoeller 2016*)
- "more important now than when it went into effect. It gives us the confidence and level of oversight we need – and could not otherwise have – by allowing U.S. inspectors unprecedented access to Russian nuclear facilities." (*Kerry 2016*)
- Would like to see more reductions
- Arms control opponents in Congress using technical implementation issues to argue against reductions

Russian Federation:

- Corrected START 2 treaty; New START (START 3) seen as more balanced (especially removal of ICBM MIRV ban)
- Doesn't limit Russian modernization program (already well below)
- Limits on launchers important given significant US warhead upload capability (breakout potential)
- Values insight provided by verification regime
- Not interested in new treaty until New START is implemented; will likely link other strategic issues to next round

Strategic Stability Issues

No important strategic stability issues, but

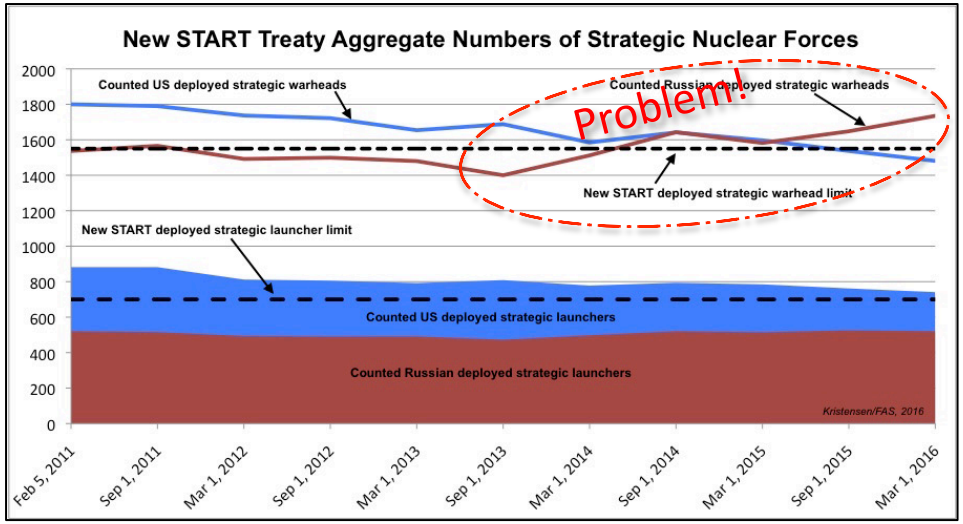
Large disparity in deployed strategic launchers fuels asymmetric postures (warhead and launcher distribution)

Russian increase of deployed warheads since 2013 gives impression that Russia is not demonstrating good faith and fuels uncertainty about period after 2018

US retention of large warhead upload capacity and "warm" ICBM silos, especially when seen together with advanced conventional weapons and growing missile defense, seen as destabilizing

Overall strategic modernizations, especially in context of new political crisis, fuel suspicion and worst-case scenario planning

US-Russia again in official adversarial relationship; both are adjusting nuclear planning accordingly



Even if Russia deployed additional strategic warheads to conduct a disarming first strike, *even significantly above the New START Treaty limits*, it "would have *little to no effects* on the U.S. assured second-strike capabilities that underwrite our strategic deterrence posture."

The "Russian Federation…would not be able to achieve a militarily significant advantage *by any plausible expansion of its strategic nuclear forces, even in a cheating or breakout scenario under the New START Treaty…*"

DOD, Report on the Strategic Nuclear Forces of the Russian Federation, 2012

Russian Modernization






ICBM

- SS-27 Mod 2 (mobile): replacing SS-25s at Novosibirsk, Tagil, Yoshkar-Ola
- SS-27 Mod 2 (silo): replacing SS-19s at Kozelsk
- SS-27 Mod 2 (rail): envisioned but uncertain
- RS-26 (compact SS-27): to replace SS-25s at Irkutsk and Vypolzovo
- RS-28 (Sarmat): to replace SS-28s at Dombarovsky and Uzhur

SSBN / SLBM

- SS-N-23 SLBM life-extension (Sineva/Layner) in Delta IV SSBN
- Borei SSBN: 8 planned (possibly 10-12)
- SS-N-32 (Bulava): fielding

Bombers

- Upgrades of some Tu-160 (Blackjack) and Tu-95 (Bear)
- New bomber (PAK PA) in development
- Nuclear ALCM (Kh-102) in development

Tactical

- Tu-22M (Backfire) upgrade underway
- Su-34 (Fullback) fielding (replacing Su-24)
- Yasen (Sverodvinsk) SSGN fielding
- SLCM (SS-N-30, Kalibr) fielding
- GLCM test-launched (not deployed)
- SSM (SS-26, Iskander) fielding (replacing SS-21)
- SAM (S-400/SA-21) fielding (nuclear?)
- ABM (A-135) upgrade planned

US Modernization

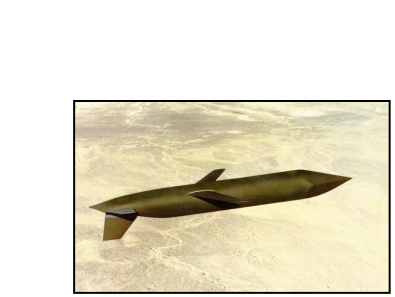
ICBM
- Minuteman III life-extension completing
- Warhead fuzes/interoperable warhead planned
- GBSD (ICBM replacement) in development

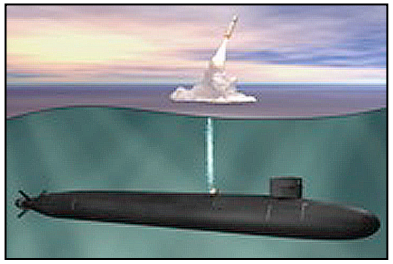
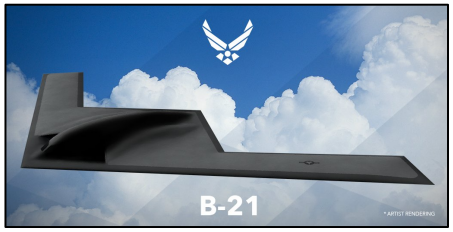
SSBN / SLBM
- Trident II D5 SLBM life-extension production
- SSBN replacement development (12 planned)
- Enhanced W76-1 warhead life-extension deploying
- W88-1 warhead life-extension development

Bombers
- Upgrade of B-2 and B-52 underway
- B-21 next-generation bomber in development
- B61-12 guided standoff bomb in development
- LRSO (ALCM replacement) in development

Tactical
- F-35A nuclear capability in development
- B61-12 guided standoff bomb in development

Infrastructure
- Uranium Processing Facility (secondaries) construction
- Plutonium production facilities (primaries) construction
- Warhead surveillance/simulation facilities upgrades




Obstacles and Possibilities

After full implementation in 2018, with current employment strategy, the United States will still deploy one-third more weapons than military says it needs for national and international security commitments.

Implementation not in doubt

Obstacles to arms control:

- Accusations of treaty violations (INF GLCM and New START SS-25 dismantlement)
- Modernizations: how to limit dynamic, avoid increasing role and nuclear weapons
- East-West crisis: erosion of trust and resurgent of military standoff and adversarial relationship pollutes everything
- Growing concern about Russian limited nuclear use scenarios and US "West of Launch" strategies (prevention or preemption)

Russia "would not be able to achieve a militarily significant advantage *by any plausible expansion of its strategic nuclear forces, even in a cheating or breakout scenario under the New START Treaty*…"

DOD, Report on the Strategic Nuclear Forces of the Russian Federation, 2012

Possibilities (depending on political climate/will):

- **Incentives**: Even if new bi-lateral treaty is not possible now, both sides have clear national interests to limit forces and operations to reduce costs and risks and tone down rhetoric
- **Treaty extension** beyond 2021 until 2023 (2026?). Extension would not be subject to advice and consent of the US Senate
- **Executive order** (or hand-shake follow-on agreement) to cut through bureaucracy, suspicion, and worst-case mindsets (ex: NFU)
- **Next New START**: ~500 launchers with ~1,000 warheads (would not require changes to US (and probably not Russian) strategy
- **Another Treaty**: ~500 launchers, ~500 warheads, no or limited MIRV, no or limited ALCMs (MIRV-like). Involvement of China?
- **Dream Treaty**: limits on strategic deployed, non-strategic, non-deployed, readiness, exercises (size, frequency, location), modernizations.

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QUESTIONS?

Additional information and resources from FAS Nuclear Information Project:

FAS Status of World Nuclear Forces Overview
https://fas.org/issues/nuclear-weapons/status-world-nuclear-forces/

FAS Nuclear Notebook Series (Column in Bulletin of the Atomic Scientists):
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