

Integrated Deterrence Considerations for the Nuclear Enterprise

DR. CHRISTOPHER YEAW

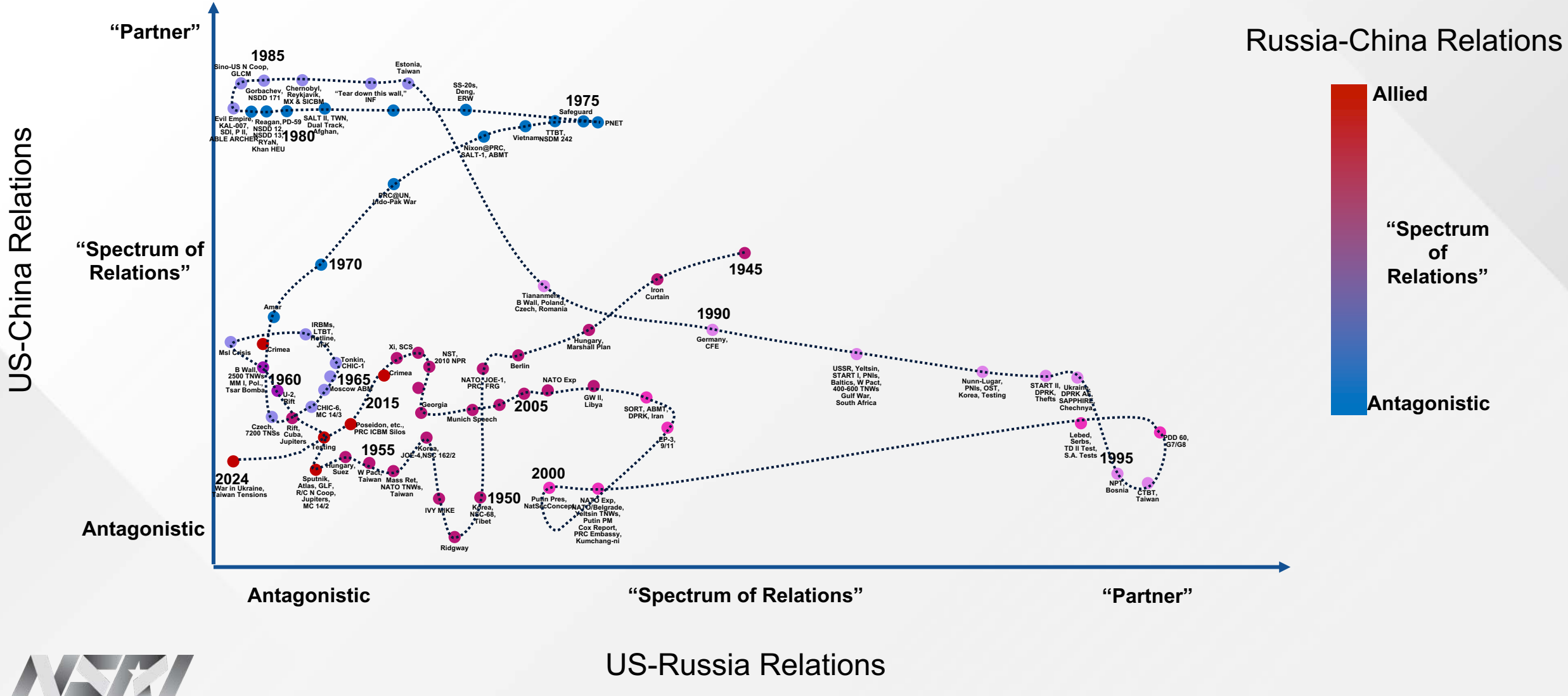
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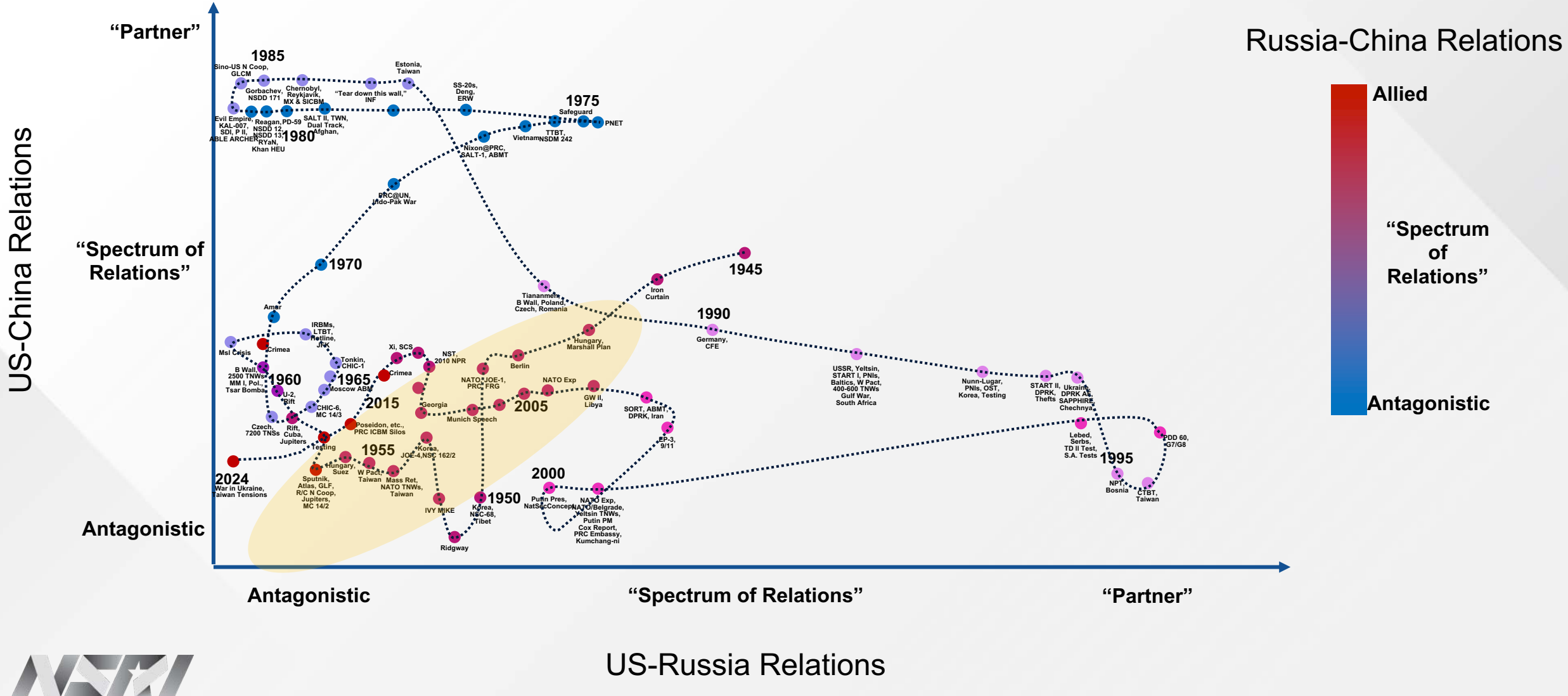
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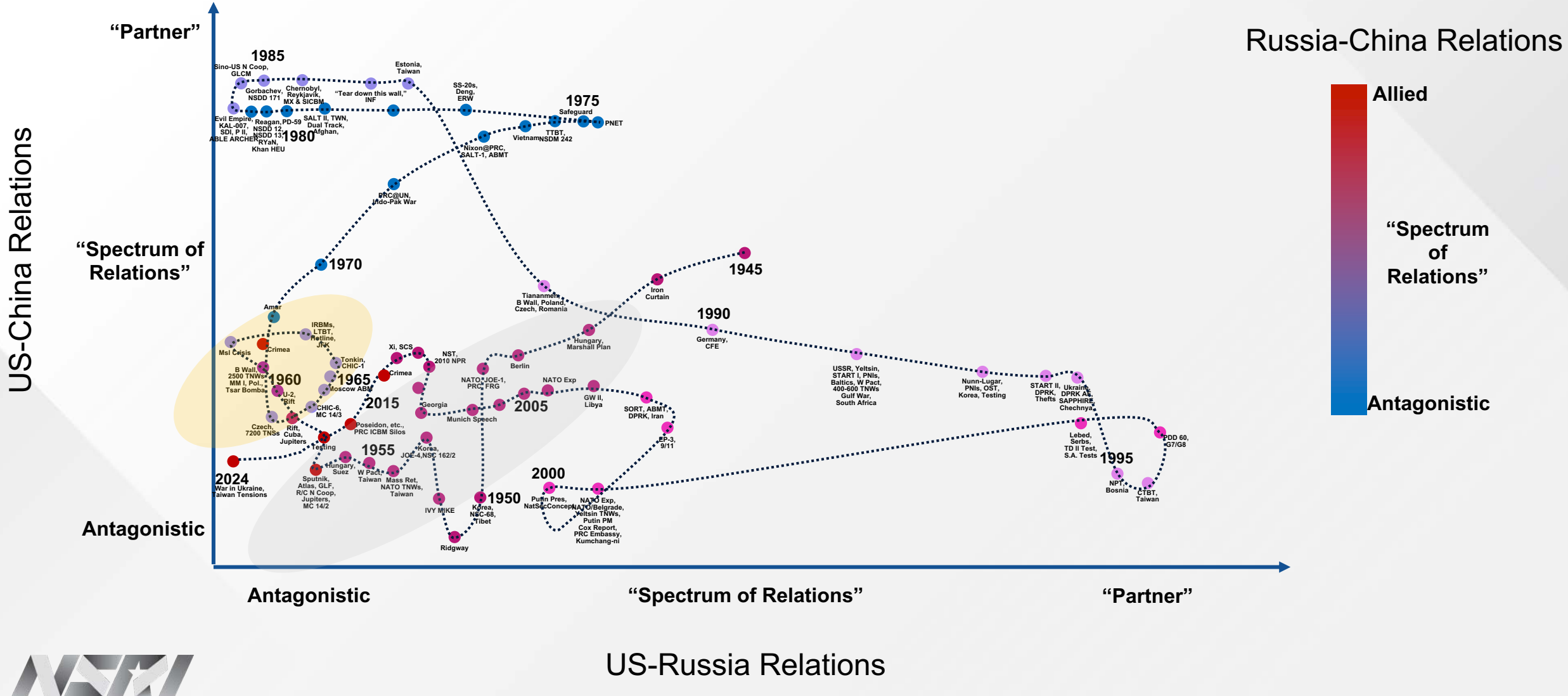
The Dual-Rival Deterrence Dilemma



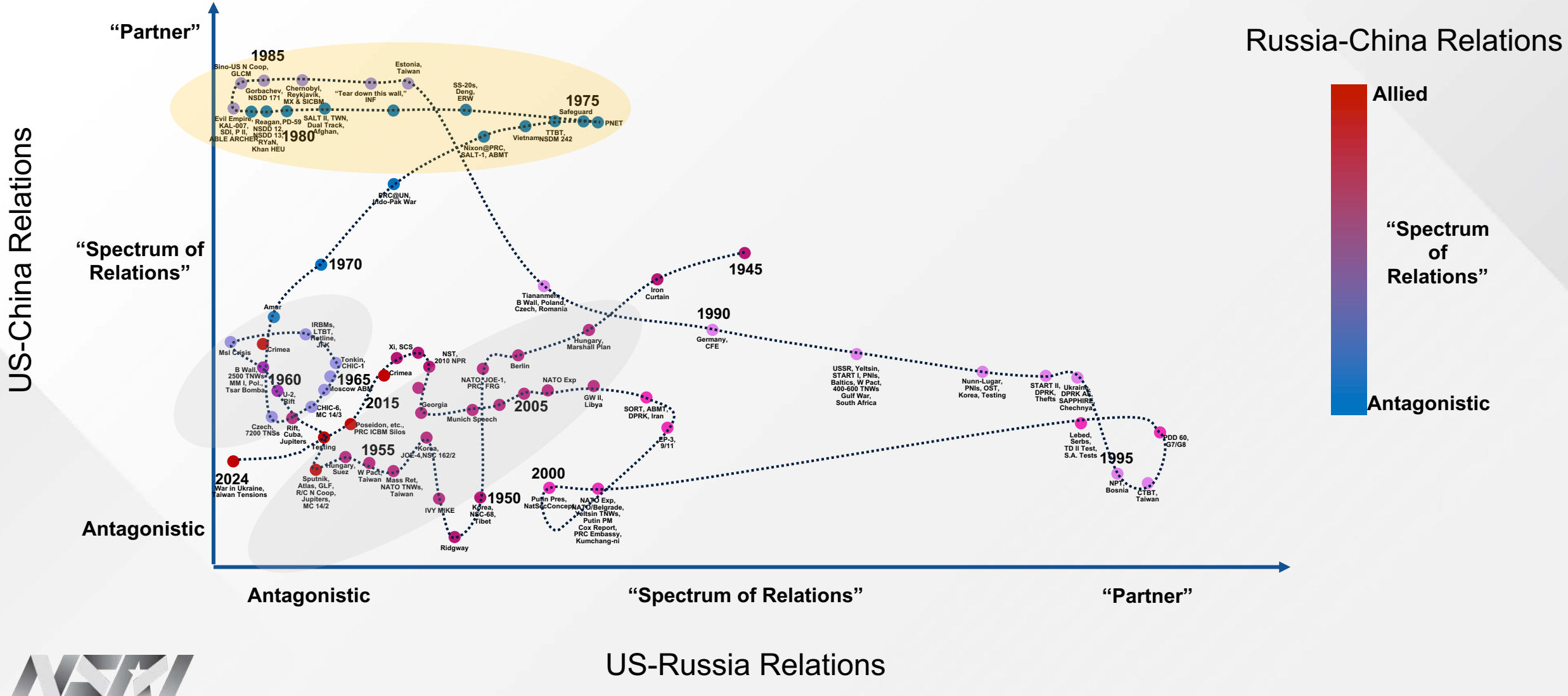
The Dual-Rival Deterrence Dilemma



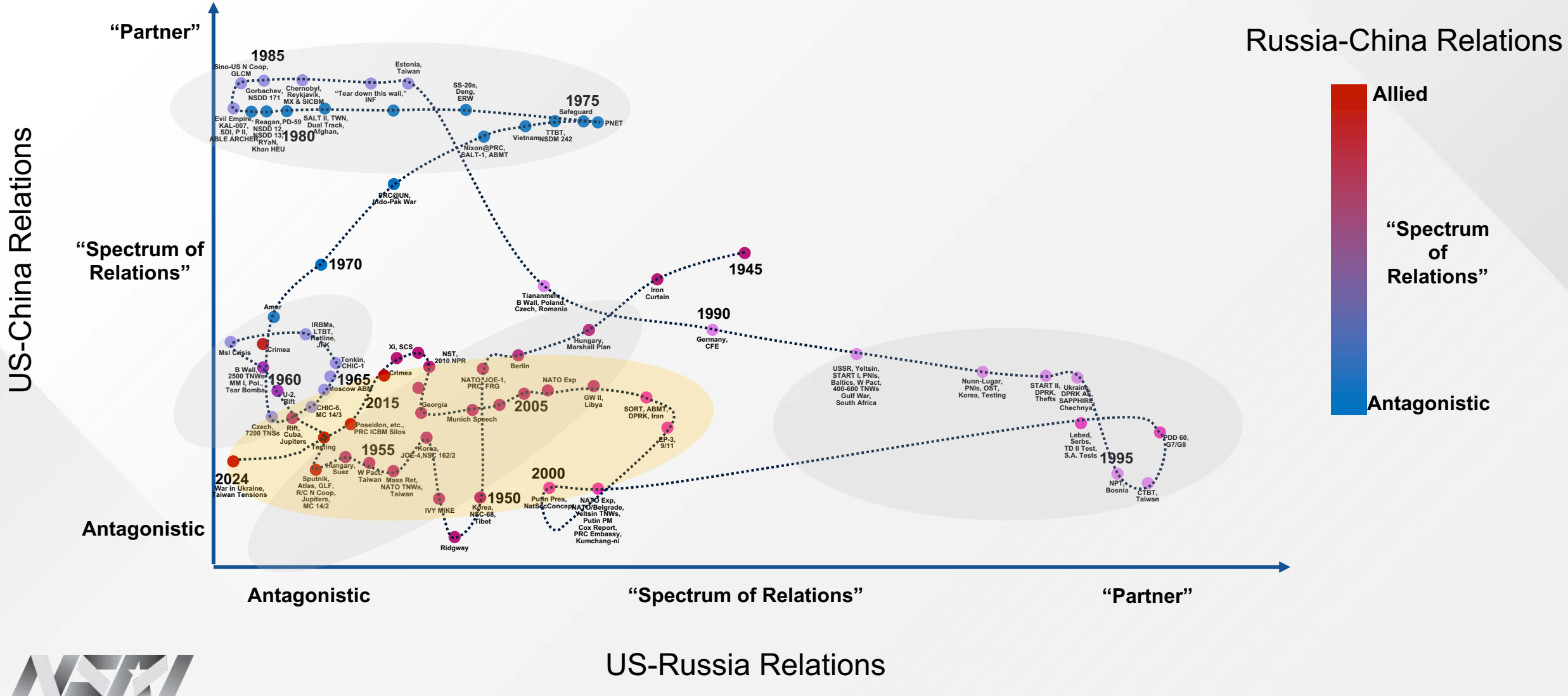
The Dual-Rival Deterrence Dilemma



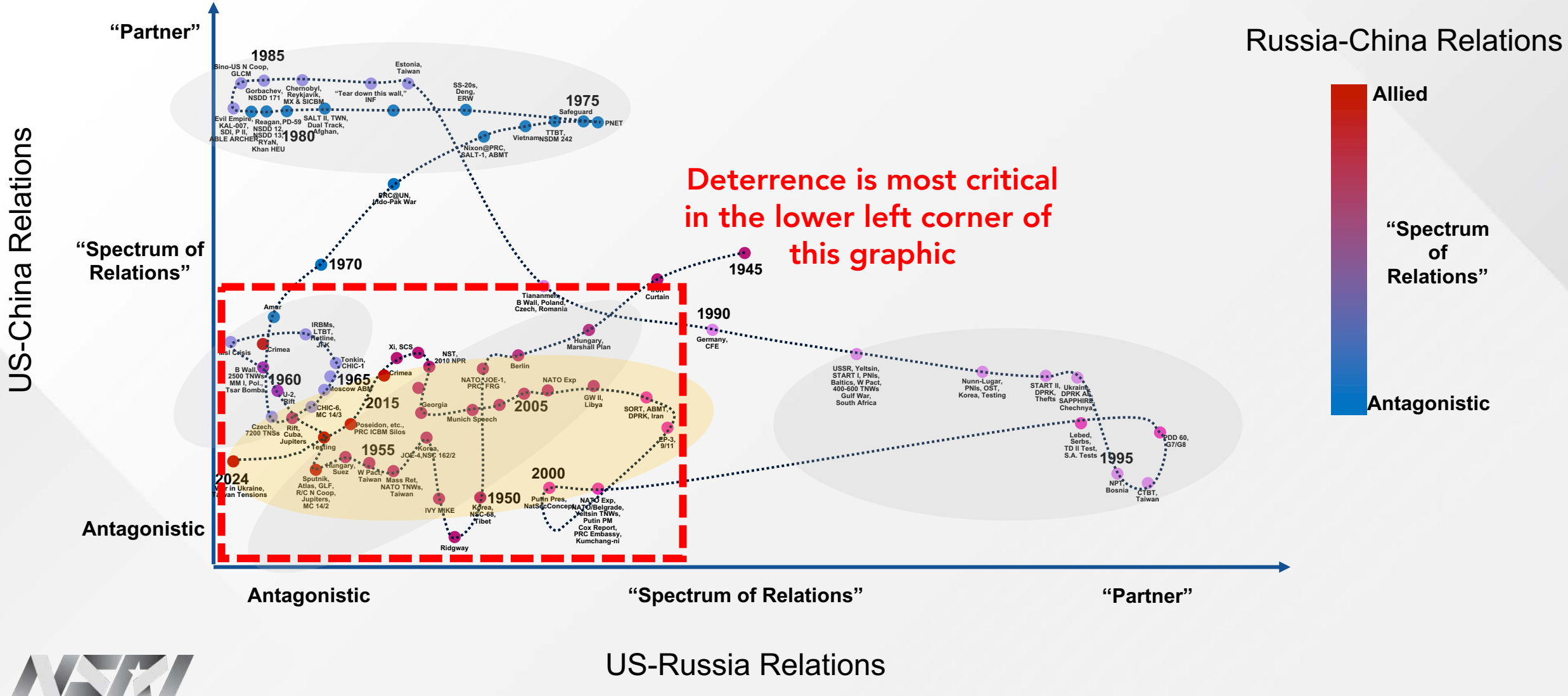
The Dual-Rival Deterrence Dilemma



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The Dual-Rival Deterrence Dilemma



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The Commission recommends this urgent expansion of the capacity of the U.S. nuclear weapons defense industrial base and the DOE/NNSA nuclear security enterprise include the flexibility to respond to emerging requirements in a timely fashion.

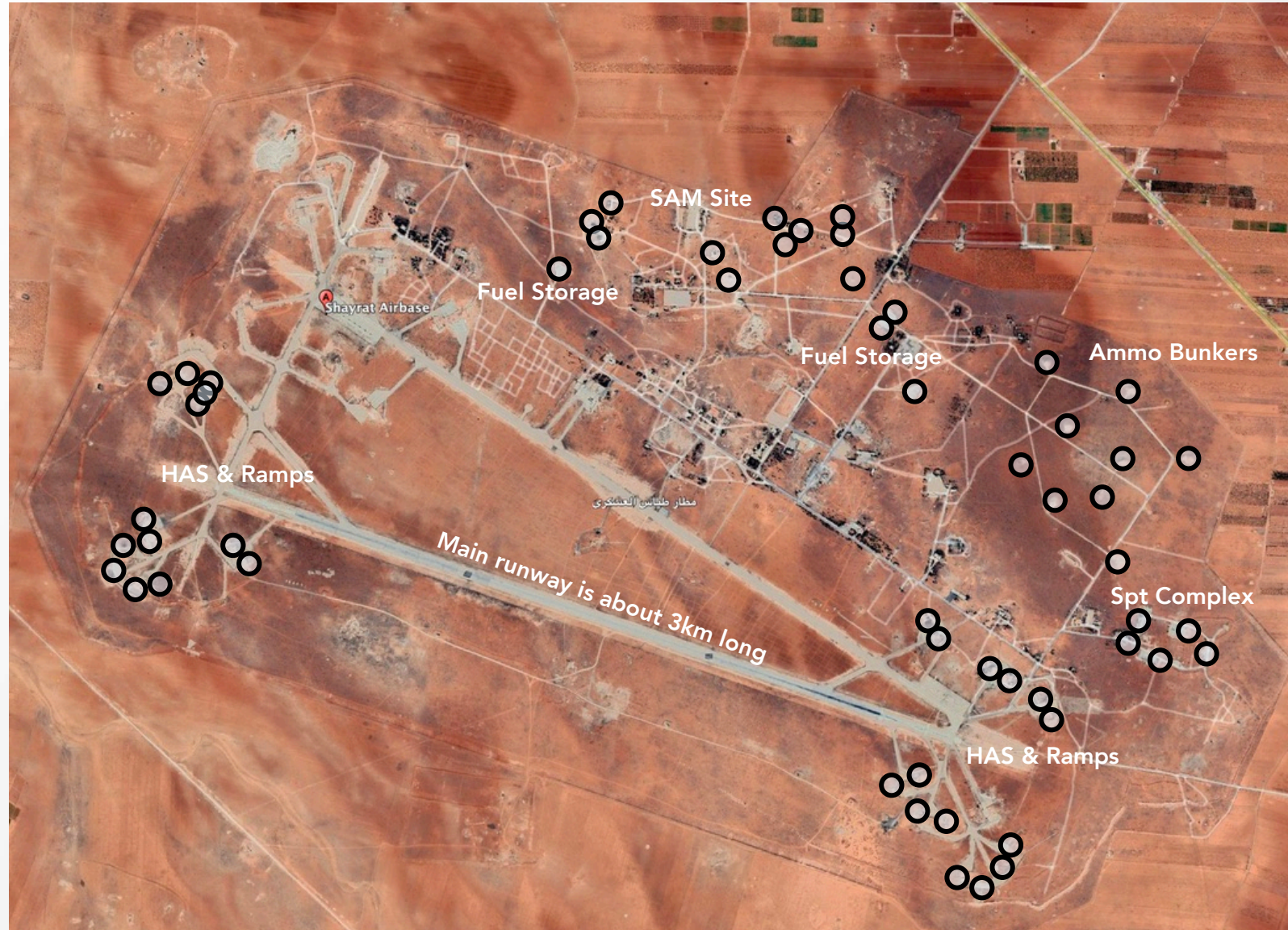
2023 STRATEGIC POSTURE COMMISSION



ONE SUCH “EMERGING REQUIREMENT”

Theater Nuclear Weapons – Economy of Munitions

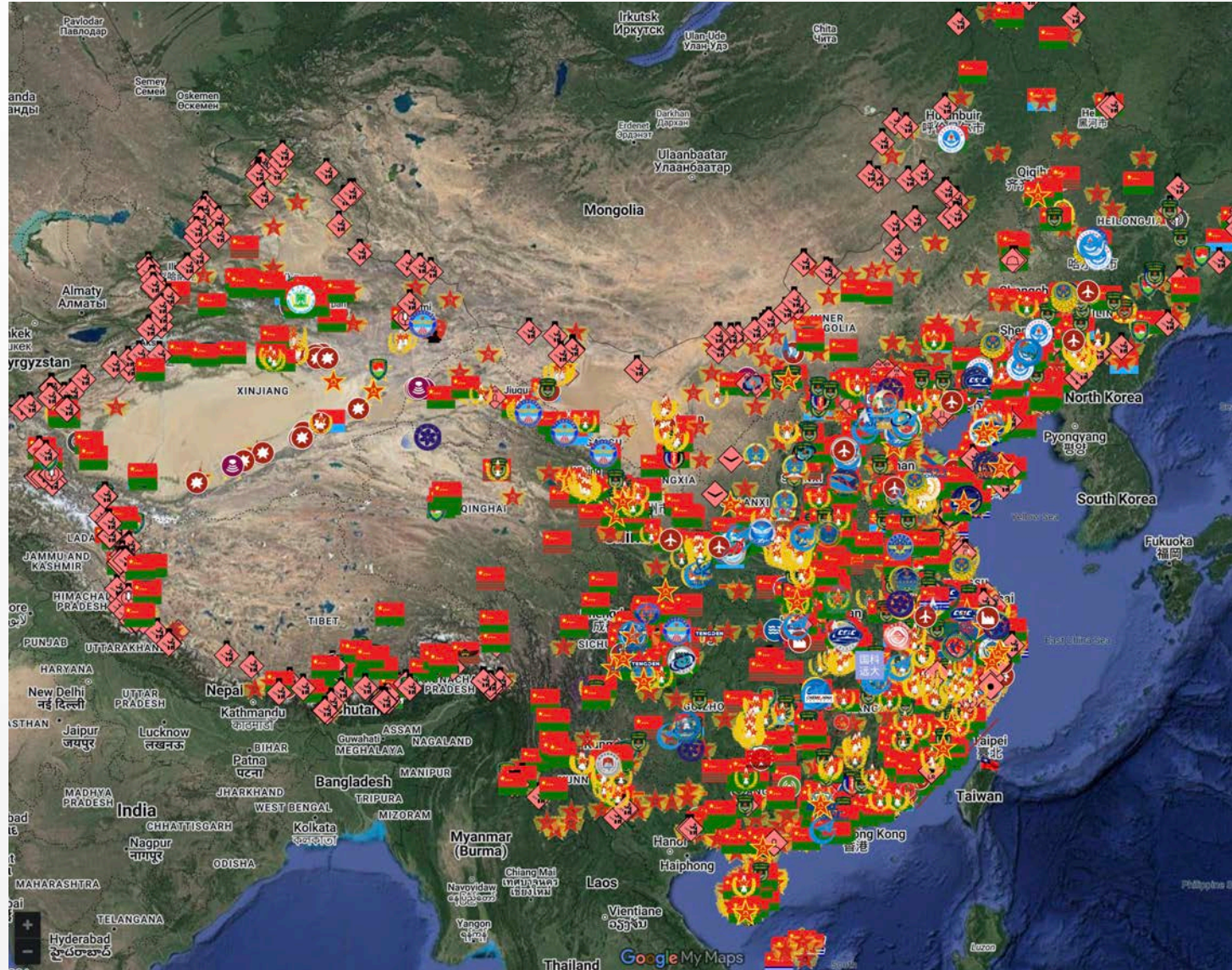
US attack on Syria’s Al Shayrat Airbase used 58 tomahawk missiles.



ONE SUCH “EMERGING REQUIREMENT”

Taking the “Moral High Road” Against China

c. 50 conventional strikes times ... ?



Map by college student, Joseph Wen, taken as a screen capture from his website.

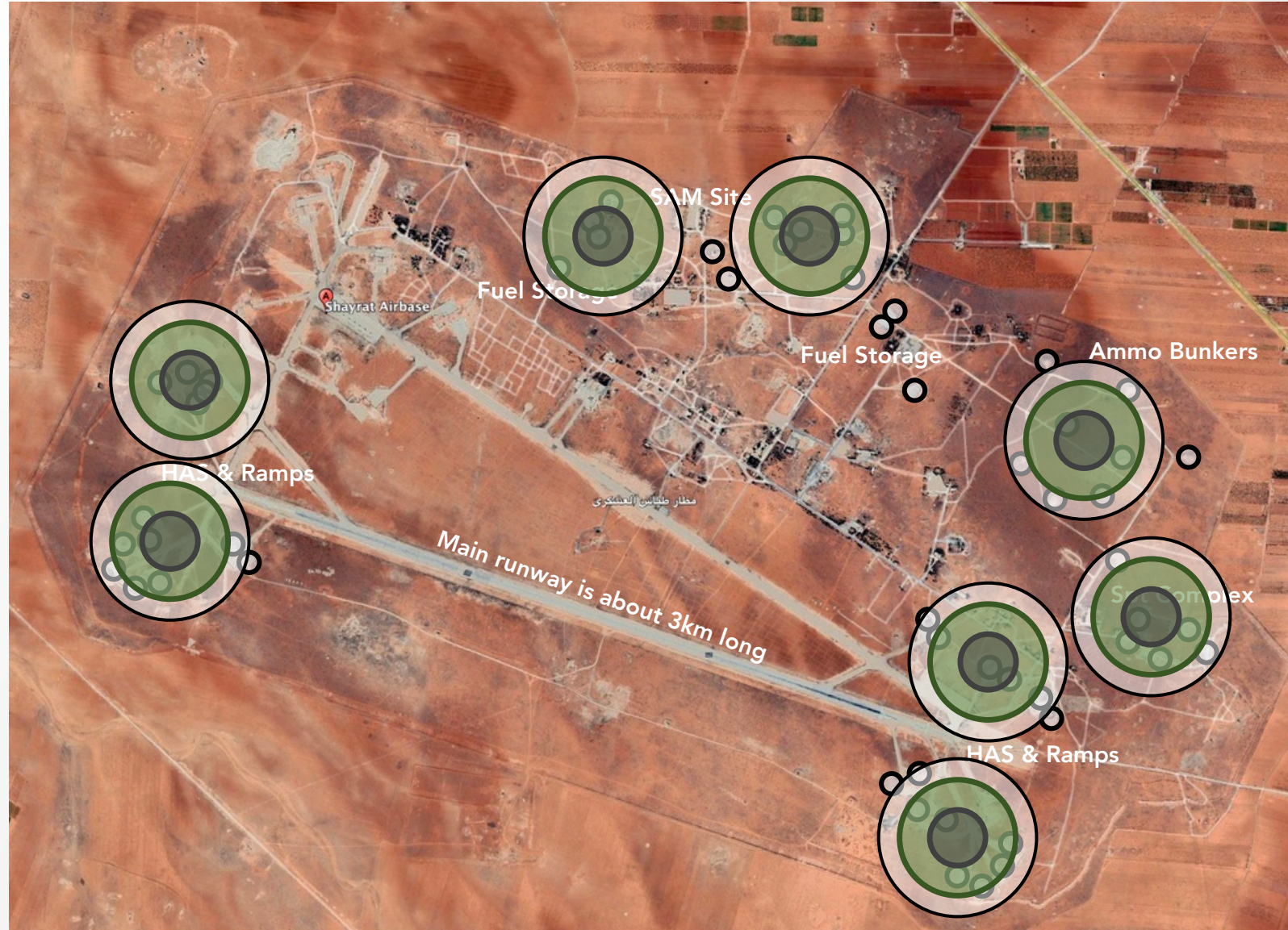


ONE SUCH “EMERGING REQUIREMENT”

Theater Nuclear Weapons – Russia’s Ultra-Low Yield Warheads

US attack on Syria’s Al Shayrat Airbase used 58 tomahawk missiles.

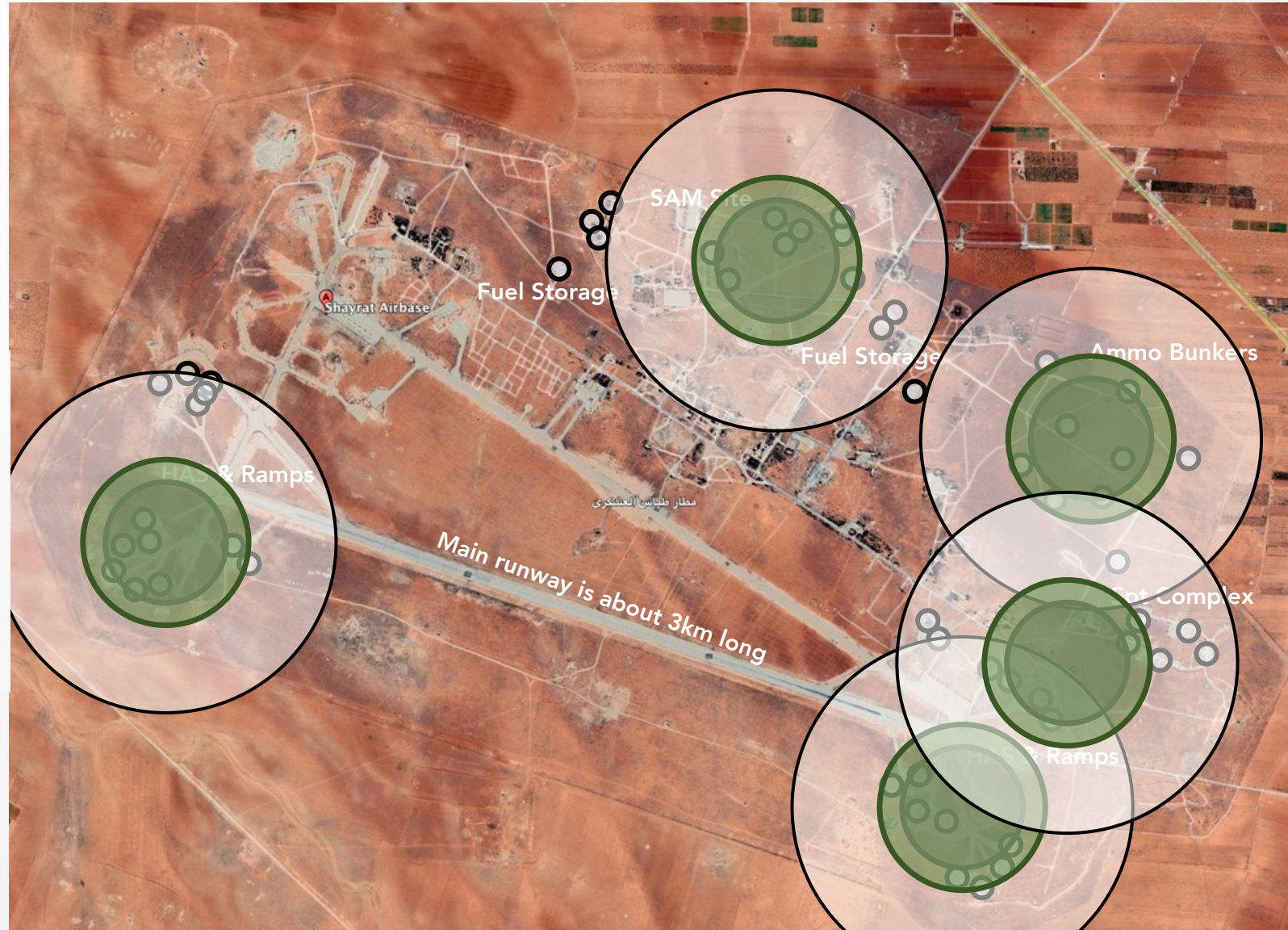
Eight 30-ton nuclear weapons would have replicated almost all of the damage (likely only leaving seven targets to survive).



ONE SUCH "EMERGING REQUIREMENT"

Theater Nuclear Weapons – Alternative Very-Low Yield Warheads

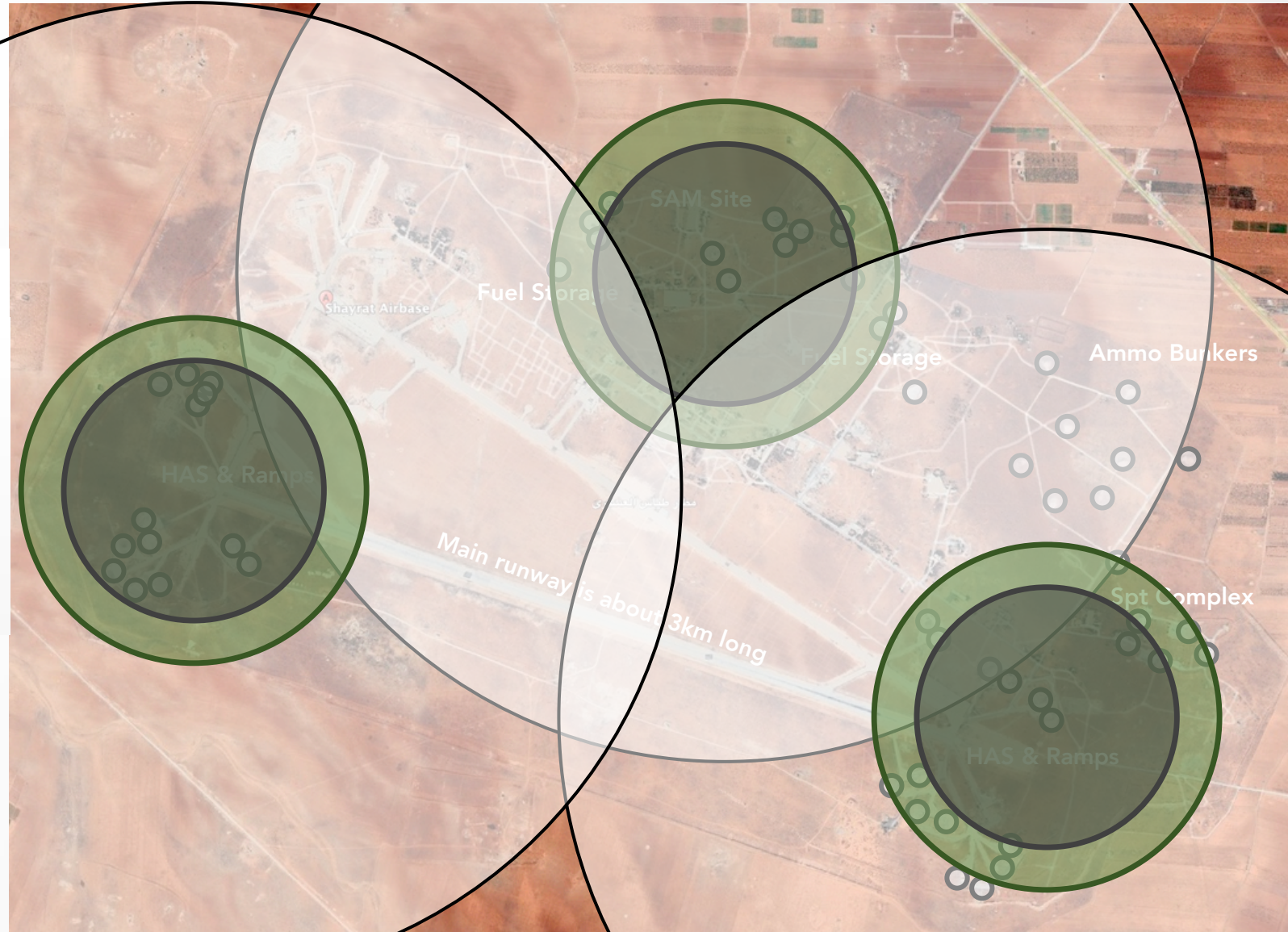
Five 300-ton nuclear weapons would have replicated most of the damage, but 19 of the 58 targets would likely have survived.



ONE SUCH “EMERGING REQUIREMENT”

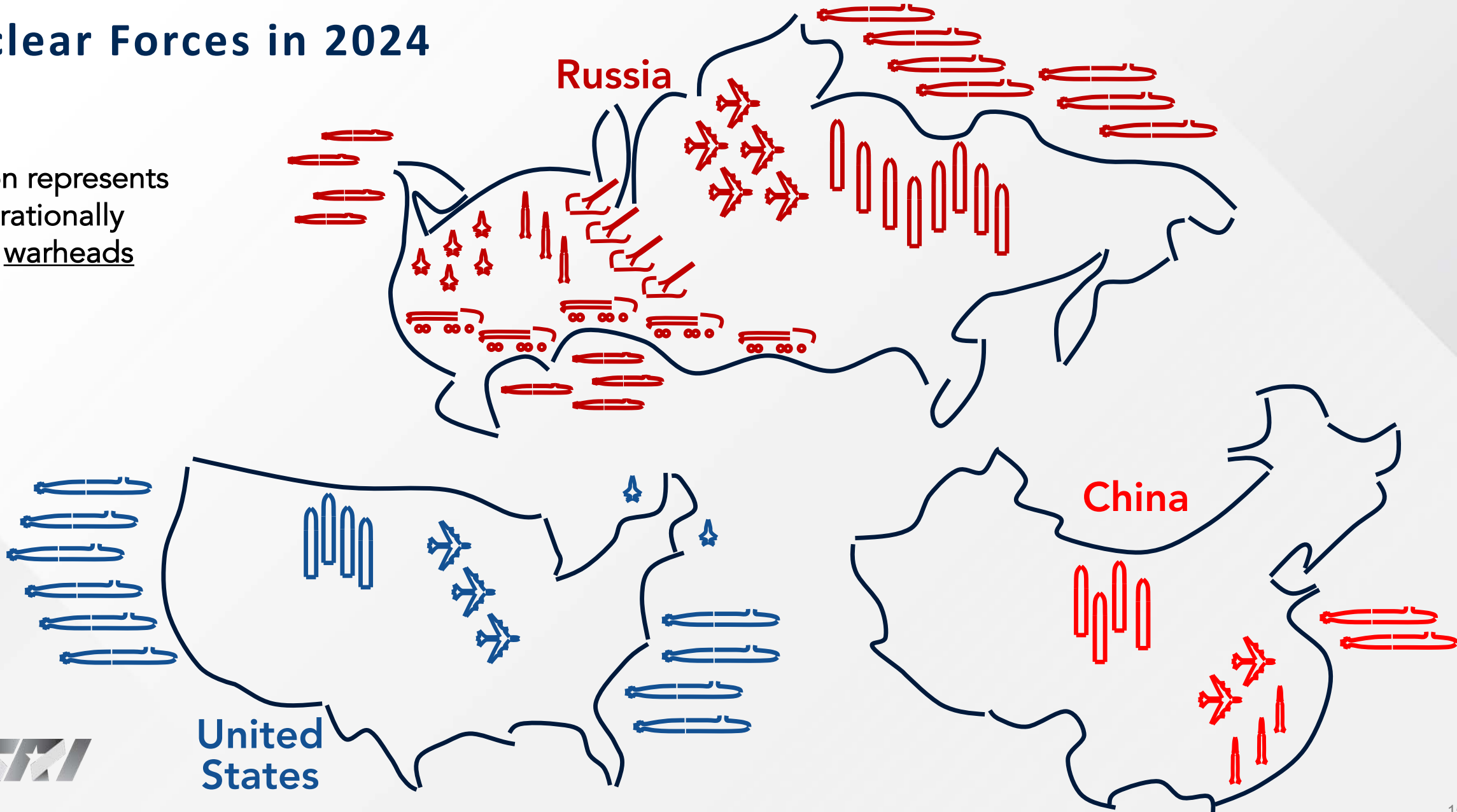
Theater Nuclear Weapons – “Low Yield” Is Not Ideally Suited

It would have required three 7kt nuclear weapons, and even then almost a dozen targets would likely have survived.



Nuclear Forces in 2024

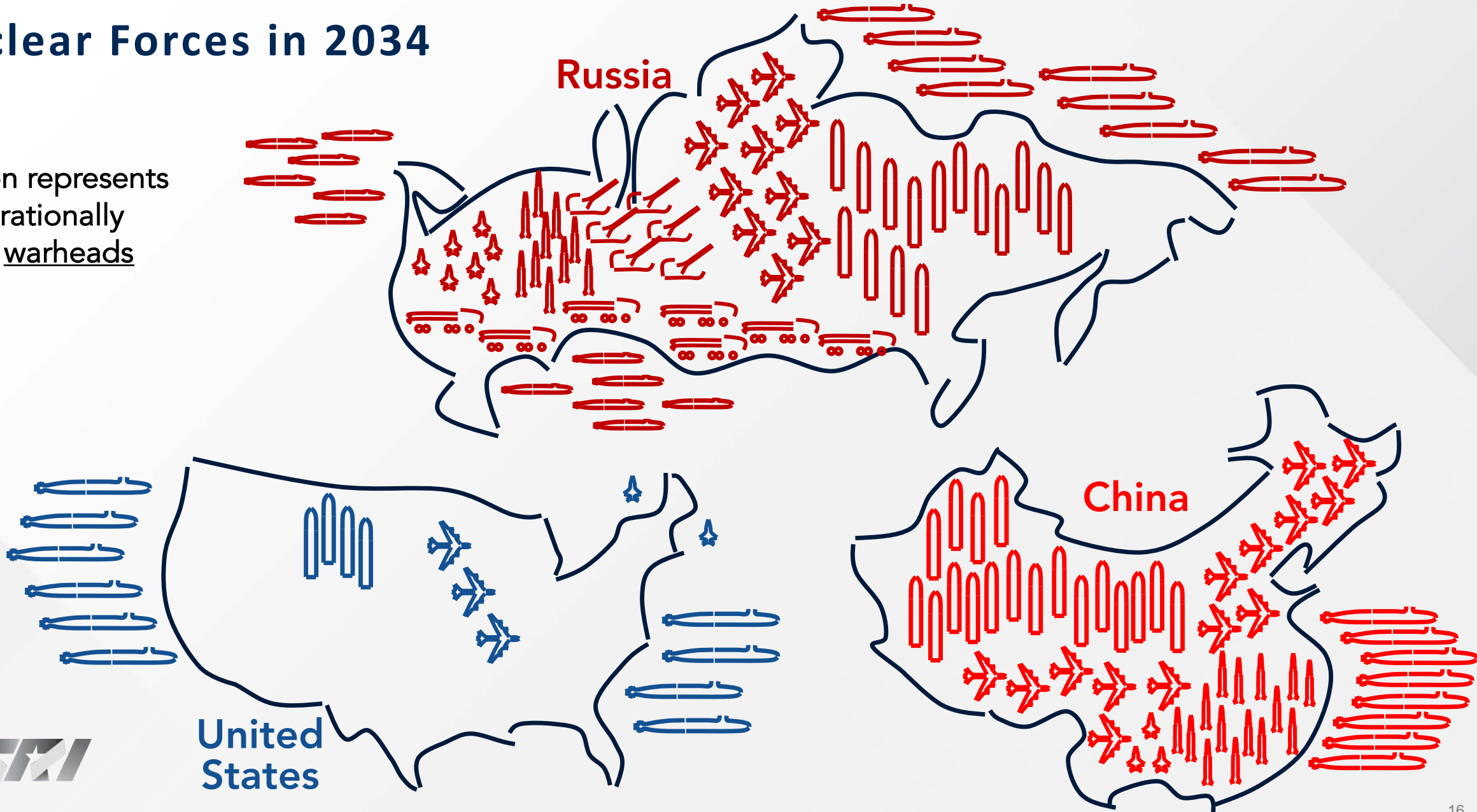
Each icon represents 100 operationally relevant warheads



United States

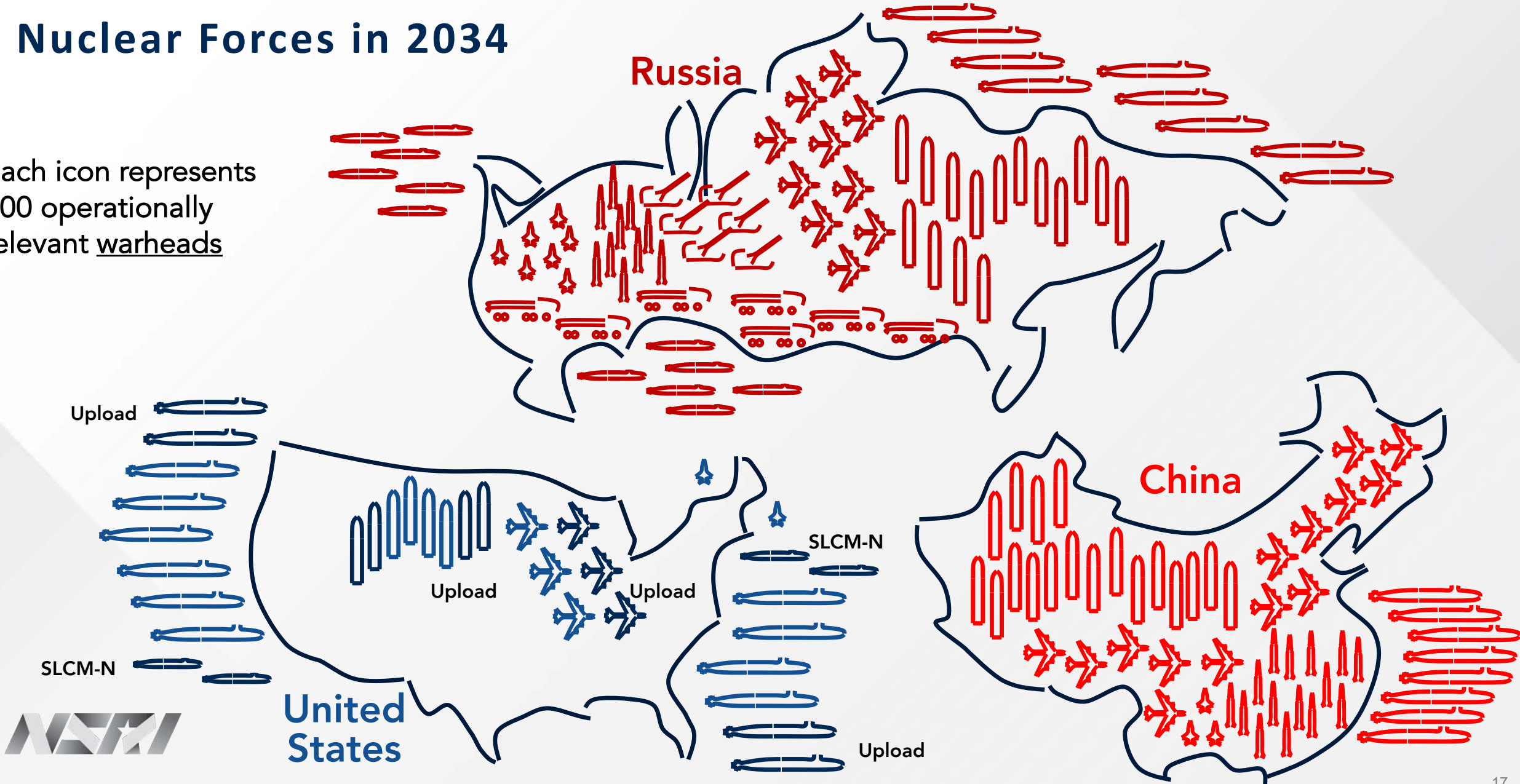
Nuclear Forces in 2034

Each icon represents 100 operationally relevant warheads



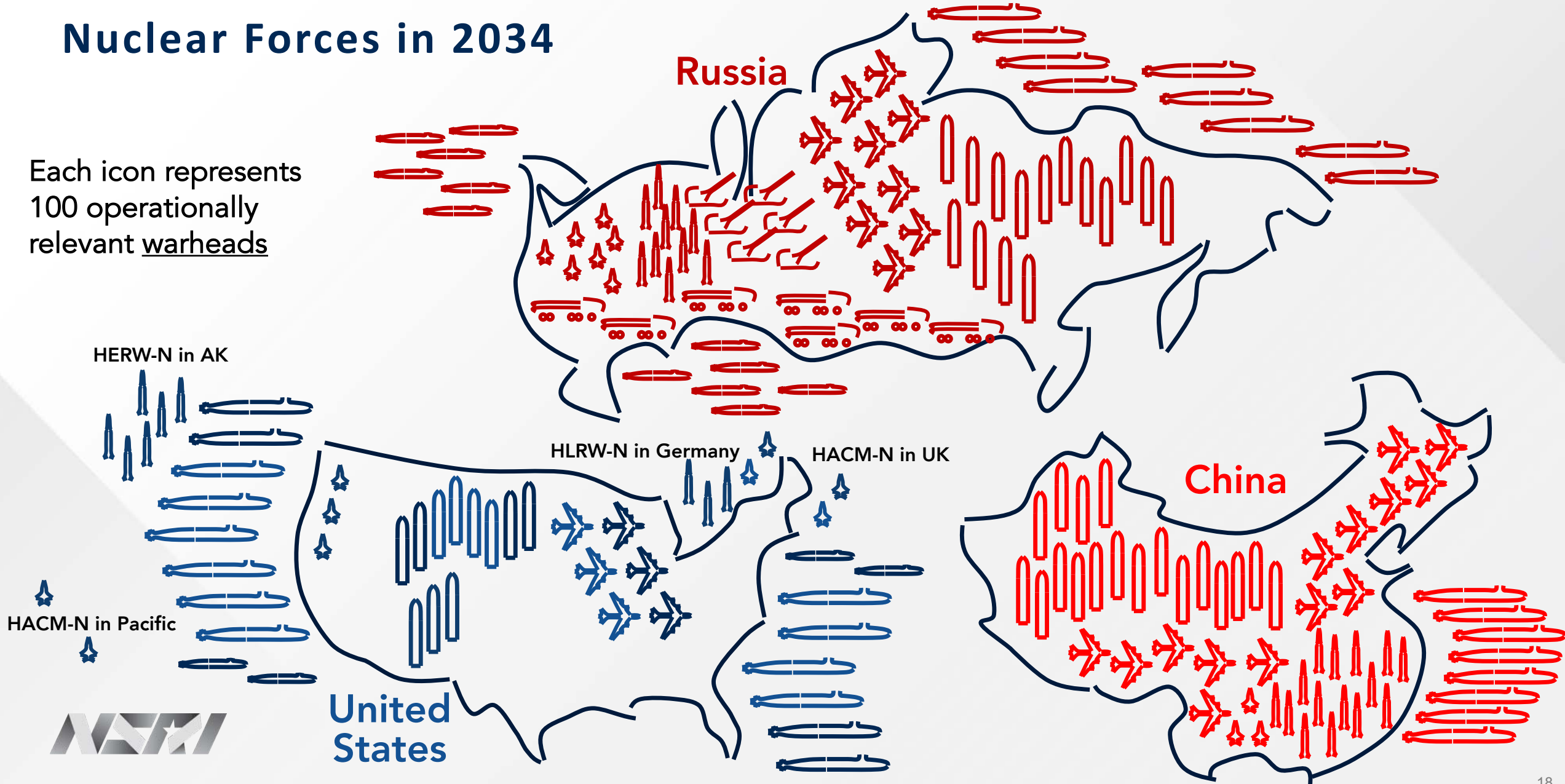
Nuclear Forces in 2034

Each icon represents 100 operationally relevant warheads



Nuclear Forces in 2034

Each icon represents 100 operationally relevant warheads



What Should We Re-Think?

- ✓ **TRITIUM PRODUCTION!!**
- ✓ **PIT PRODUCTION IS BEYOND "URGENT" ... WE ARE WAY FURTHER BEHIND THAN WE USUALLY THINK!**
- ✓ **RE-USE OF STORED PITS FOR THEATER WEAPONS**
 - ✓ Systems not expected to penetrate a nuclear air-defense system, nor is employment expected where fratricide is likely
 - ✓ STS environments expected to be similar to those for the now-retired Short-Range Attack Missile (SRAM), but hypersonic
 - ✓ The designs should minimize weight but will certainly fall well below the designed warhead weights of the anticipated delivery systems
 - ✓ Radiation hardening not required
- ✓ **"DILUTE AND DISPOSE" SHOULD BE RE-CONSIDERED**
 - ✓ Our rivals will be fielding a combined operational force well in excess of 10,000 warheads within a decade!!
- ✓ **GIVEN THE RUSSIA – CHINA – DPRK – IRAN ALIGNMENT, ASSUME THAT THE 70+ MT OF SEPARATED WEAPONS GRADE PLUTONIUM IN RUSSIA MIGHT BE INTERNATIONALLY AVAILABLE TO "ALLIES"**
- ✓ **EXPANDED BASING OF US NUCLEAR WEAPONS, AND THE SURETY ISSUES INVOLVED**



Questions?

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