Ukraine War and Nuclear Risks

Hans M. Kristensen
Director, Nuclear Information project
Federation of American Scientists
h kristensen@fas.org

Briefing to
Arms Control Association webinar on nuclear risks in Ukraine war
October 11, 2022
Russian nuclear forces overview

- Russia has issued nuclear threats during Ukraine war, most recently in the context of protecting annexed regions. Follows threats in 2014 and earlier.

- Military stockpile: Nearly 4,500 warheads (plus 1,500 retired)

- 1,000-2,000 non-strategic warheads (including retired). Estimate significantly lower than 3,000-5,000 warheads DOD referenced in 2009 briefing to NATO.

- Very diverse: air, navy, air/missile-defense, army.

- Categories: Strategic versus non-strategic, but any use would be strategic. Non-strategic are really regional weapons. Better division is long- and shorter-range weapons. Reflects that many of Russia’s nuclear scenarios are on their periphery. Plus, without large non-strategic inventory Russia would have significant stockpile disparity with US.
Russian nuclear forces overview

• Potential use in Ukraine context would most likely involve shorter-range weapons, fx Iskander SRBM. To have effect on war, Russia would have to use many nuclear weapons.

• Putin decides but military has to cooperate; there is no red button. Strategic are on alert and could be used quickly. Tactical in central storage and would first have to be brought out, transported, and readied.

• Effects depend on target, yield and height of detonation. Fallout depends on yield, height of burst, wind, precipitation. Simple simulations from Nukemap:
NATO nuclear forces overview

- US/NATO has so far not wanted to react with explicit nuclear counter-threats. But today NATO Secretary General Stoltenberg explicitly included references to upcoming Steadfast Noon nuclear exercise and Nuclear Planning Group meeting in remarks rejecting Putin’s threats.

- US relies less on non-strategic nuclear weapons and have much better conventional capabilities.

- US forward-deployed non-strategic nuclear weapons in Europe serve as symbol of US commitment. Military utility is limited but not zero. Modernization with F-35A and B61-12 will enhance capability.

- To the extent nuclear is needed, US relies more on strategic bombers. Moreover, with B61-12, the full range of low-range capabilities will be added to US strategic bombers and tactical fighter-bombers.