

De-alerting Strategic Forces

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Key Findings and Judgments

The end of the Cold War did not lead the United States and Russia to significantly change their nuclear strategies or the way they operate their nuclear forces. Both sides maintain about one-third of their total strategic arsenals on launch-ready alert. Hundreds of missiles armed with thousands of nuclear warheads—the equivalent of about 100,000 Hiroshima bombs—can be launched within a very few minutes. The command and early warning systems are geared to launch on warning—firing friendly forces en masse before the arrival of incoming enemy missiles with flight times of 12–30 minutes.

The Russian early warning system has been decaying since the breakup of the Soviet Union and despite some recent upgrades it is more prone today to cause false alarms than it was during the Cold War. Despite this technical degradation, both the Russian and U.S. postures normally run a somewhat lower risk of launching on false warning due to their improved political relationship and higher propensity to discount tactical warning indications of enemy missile attack. *But the risk remains non-negligible in peacetime, and would spike upwards in the unlikely event of a nuclear confrontation between them.*

Although both sides impose very strict safeguards on their strategic nuclear forces to prevent an unauthorized launch, the actual level of protection against unauthorized launch defies precise estimation due to the complexity of the nuclear command-control systems and of the

threats to them. Serious deficiencies are routinely discovered. *There is reason to believe that state and non-state actors including terrorists may be able to exploit weaknesses in these systems of control by physical or informational means, heightening the risks of unauthorized or accidental launch.* Cyber-attack is a growing threat in these terms. The traditional two-man rule arguably is no longer an adequate safeguard in an era of information warfare.

The traditional war-fighting postures keep nuclear weapons in constant motion and thereby create opportunities for terrorists to capture or steal them, particularly in Russia where the number of weapons in transit or temporary storage is especially large. In precluding all weapons from being locked down in secure storage, the U.S. and Russian nuclear postures embody unnecessary risk and thwart the efforts of the Nunn-Lugar program.

The U.S. and Russian force postures lend legitimacy to the nuclear ambitions of other nations, and to those nations' adoption of launch-ready nuclear postures. Over time more states are likely to follow in our footsteps, and increase their own forces' combat readiness, resulting in growing worldwide dangers of accidental or unauthorized launch, or theft, of nuclear weapons. Major benefits would accrue from standing down ("de-alerting") the legacy postures. Keeping thousands of weapons ready to fly upon their receipt of a short sequence of simple computer signals is inherently risky. De-alerting would increase warning and decision time far beyond the short fuse inherent in current command systems, thereby reducing the risk of mistaken launch to negligible proportions. De-alerting would greatly strengthen safeguards against unauthorized launch and terrorist exploitation.

De-alerting could also strengthen crisis stability. Driven by their current war-fighting strategies, a serious crisis today could spark an unstable re-alerting race between the two postures. Whereas de-alerting is often criticized on the grounds that it would contribute to instability during a crisis as forces race to return to launch-ready alert, the actual situation is the polar opposite. The current nuclear postures are prone to break-neck re-alerting during a crisis and would severely

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undermine crisis stability. De-alerted postures can be designed to alleviate this danger.

Another major benefit of de-alerting is its contribution to curbing proliferation. Standing down the forces would downgrade the role of nuclear weapons, and convey a hopeful and serious message to the world that reliance on them is diminishing. This would strengthen non-proliferation diplomacy, foster progress toward the global elimination of nuclear arsenals, and contain an otherwise growing worldwide risk of accidental or unauthorized use or theft of nuclear weapons.

De-alerting is feasible. Wholesale de-alerting happened once before, in 1991. There are many practical ways to extend the time needed to fire U.S. and Russian nuclear forces—by hours, days, weeks, months, and even years—while preserving stable deterrence during peacetime and in the remote event of a U.S.-Russian nuclear crisis. De-alerting options take the form of procedural or physical modifications, or both.

Implementing such measures would nullify quick-launch options and create an unmistakably second-strike posture geared to riding out an attack before retaliating. The traditional nuclear strategies of both nations would be transformed by this change; *the pre-dominance of nuclear war-fighting would be ended.* Further, the demands on the command system required in this “launch after attack” posture would promote a salutary new focus on enhancing the survivability of present arrangements.

Ideally, both U.S. and Russia would stand down in unison. Reciprocal de-alerting would immediately yield major security and safety benefits to both sides. Because Russia’s strategic forces today are vulnerable to a sudden surprise attack, U.S. de-alerting would allay Russian fear of a disarming U.S. first-strike and justify Russia removing its own finger from the nuclear button. Reciprocal Russian de-alerting would bolster U.S. force survivability but would be especially welcome for lowering the risks of a mistaken or unauthorized Russian launch.

This beneficial de-alerting dynamic could begin with U.S. unilateral steps that would preserve the survivability of its nuclear forces and

give Russia confidence to follow suit. Unilateral U.S. de-alerting would protect the United States if it causes Russia to begin to relax—physically or psychologically—its nuclear hair-trigger. Unilateral steps that jeopardize the survivability of nuclear forces obviously would not satisfy the criterion of maintaining stable deterrence and would thus not be recommended.

The more deeply the postures are de-alerted—for instance, by separating warheads from delivery vehicles and consolidating the nuclear stockpiles in storage depots on land—the easier it becomes to verify their off-alert status, but the more critical this verification process becomes. Strict monitoring becomes essential because the successful covert break-out of a small number of deliverable nuclear weapons could threaten the wholesale destruction of the concentrated stockpiles in depots on the other side.

This report evaluates several of the most promising de-alerting options and finds many of them worthy of support. Recommendations are made with varying degrees of enthusiasm and qualification.

Procedural changes to extend the launch timeline by dropping prompt launch and massive attack options from the emergency war plans. These changes could lengthen the timeline for both decision and execution, and preclude large-scale retaliatory strikes. By taking operationally meaningful, rather than cosmetic, steps to de-target the strategic missile forces, any move to bring them back to launch-ready status would incur significant delays in re-targeting. With some qualifications due to transparency and verification concerns, this report recommends these changes, which could readily be adopted, because they would reduce the risks of mistaken launch on false warning, *require significant time to reverse (many hours to re-target; many days to revert to former procedures)*, preserve deterrence under the worst of plausible conditions, and build momentum toward a nuclear-free world. It is a qualified recommendation, however, because the degree of transparency and verifiability is low.

Physical de-alerting measures that could be instituted immediately on the U.S. side by ‘safing’ Minuteman missiles in their silos—flipping a safety switch inside the silos that electronically isolates the missiles from outside launch signals—and refraining from installing special

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electronic devices known as ‘inverters’ on the tubes of Trident submarines going on patrol. These simple, practical measures are stronger in all the respects noted above for the procedural changes, and have the added virtues of *extending the time to re-alert the bulk of the forces by approximately 24 hours* and of lending themselves to a modest degree of verification that would build confidence over time. Analogous or comparable measures can be effected in the Russian posture, resulting in a stable nuclear balance that removes sudden first-strike and launch on warning completely from the array of response options available to decision-makers, and that all but eliminates the prospect of unauthorized actors, including terrorists, exploiting hair-trigger postures to cause a nuclear incident or actual firing.

Physical measures that could be instituted in 1–3 years by creating a reserve strategic nuclear force that entails separating warheads from their delivery vehicles (missiles) but widely dispersing both warheads and missiles in protected positions. For a notional U.S. strategic force utilizing the existing force of 14 Trident submarines and the planned force of 450 Minuteman silos, this de-alerting scheme calls for storing Minuteman warheads in 225 otherwise empty silos, adjacent to 225 silos housing the unarmed Minuteman missiles; and for storing Trident warheads on 11 boats in 11 otherwise empty tubes on each boat, adjacent to 11 tubes housing the unarmed Trident missiles. Supplemented by 143 bomber warheads in local base storage, this de-alerting scheme preserves a large margin of survivability under worst-case conditions of break-out and attack by opposing forces. Reciprocal Russian measures would produce a resilient 500-warhead reserve force on each side that further *extends the time to re-alert* (by re-mating warheads to adjacent silos/tubes) *by days to weeks*. This option is highly rated in terms of stable deterrence, re-alerting stability, depriving unauthorized actors of any opportunity to induce a launch, and eliminating the risk of mistaken launch on false warning. Furthermore, this option rates highly with respect to transparency and verification. It would both demand and benefit from U.S.-Russian monitoring cooperation that applies to the warheads as well as launchers and promote the creation of an auditable database of warheads that in turn would facilitate progressive disarmament. Most notably, this option

would significantly reduce the relative importance of nuclear weapons in national security policies. It would provide a waypoint on the path toward storing the entire U.S. and Russian nuclear arsenals and inspire greater confidence regarding the path toward the long-term goal of total elimination.

Physical measures for the medium-term future (4–6 years) that transfer nuclear warheads from their field deployment into warhead storage depots on land. Such wholesale consolidation of nuclear stockpiles would mark the end of traditional nuclear war-fighting strategies. *Reconstitution times for the bulk of the arsenals would be measured in weeks and months, greatly marginalizing their role and significantly facilitating further steps toward complete elimination.* It would also put the stockpiles into a full ‘lock-down’ status that would offer the optimal conditions for preventing accidental and unauthorized use, or theft, of nuclear weapons. However, this option must be implemented with great caution. Depots stocked with large numbers of warheads present a potentially lucrative target. The break-out of even a few weapons could pose an extreme threat if the opposing forces’ nuclear ordnance is concentrated in only a few depots. Therefore *before any transition to this storage option is completed, a number of pre-conditions should be satisfied.*

First, monitoring and verification must be able to perform at a very high level with exact accounting of warheads in storage down to the single weapons unit. *Second*, all of the P-5 states and perhaps other nuclear states need to be involved in this option—even limited capabilities in the hands of third parties could pose a potentially severe threat to the locked-down forces of the U.S. and Russia. This de-alerting regime should thus be comprehensively multilateral with stringent and enforceable monitoring and verification provisions. *Third*, given the enhanced threat represented by a single nuclear weapon, a strict realerting protocol would be essential should any nuclear nation deem it necessary to take this highly momentous and potentially destabilizing step. *Fourth*, similar protocols and constraints may need to be devised for conventional forces. A party that covertly begins to reconstitute its nuclear forces could use conventional forces to degrade an ostensible opponent’s ability to respond in kind. *Fifth*

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and last, storage depots on land can and should be designed to withstand a small-scale nuclear attack. With respect to the U.S., the 50 empty MX Peacekeeper silos and the 50 Minuteman silos slated for mothballing could be utilized to protect a stockpile of reserve warheads for submarines, land-based missiles, and bombers.