

Blocking the Breakout: Red Lines and the Iranian Nuclear Program

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Iran's nuclear weapons program has crept closer and closer toward breakout. The U.S. Director of National Intelligence reported in July 2024 that Iran has "undertaken activities that better position [Iran] to produce a nuclear device, if it chooses to do so." Recent statements by Iranian officials have openly questioned the permanence of Iranian Supreme Leader Ali Khamenei's alleged fatwa against the development of nuclear weapons. American policymakers need to urgently and seriously examine how they might identify, declare, and enforce a "red line" against Iran's efforts, taking into consideration how such efforts could best create deterrence. The time to do so is now, as the flexibility and utility of this option will keep decreasing as Iran's nuclear program advances—leaving U.S. policymakers with even fewer tools to prevent an Iranian nuclear breakout.

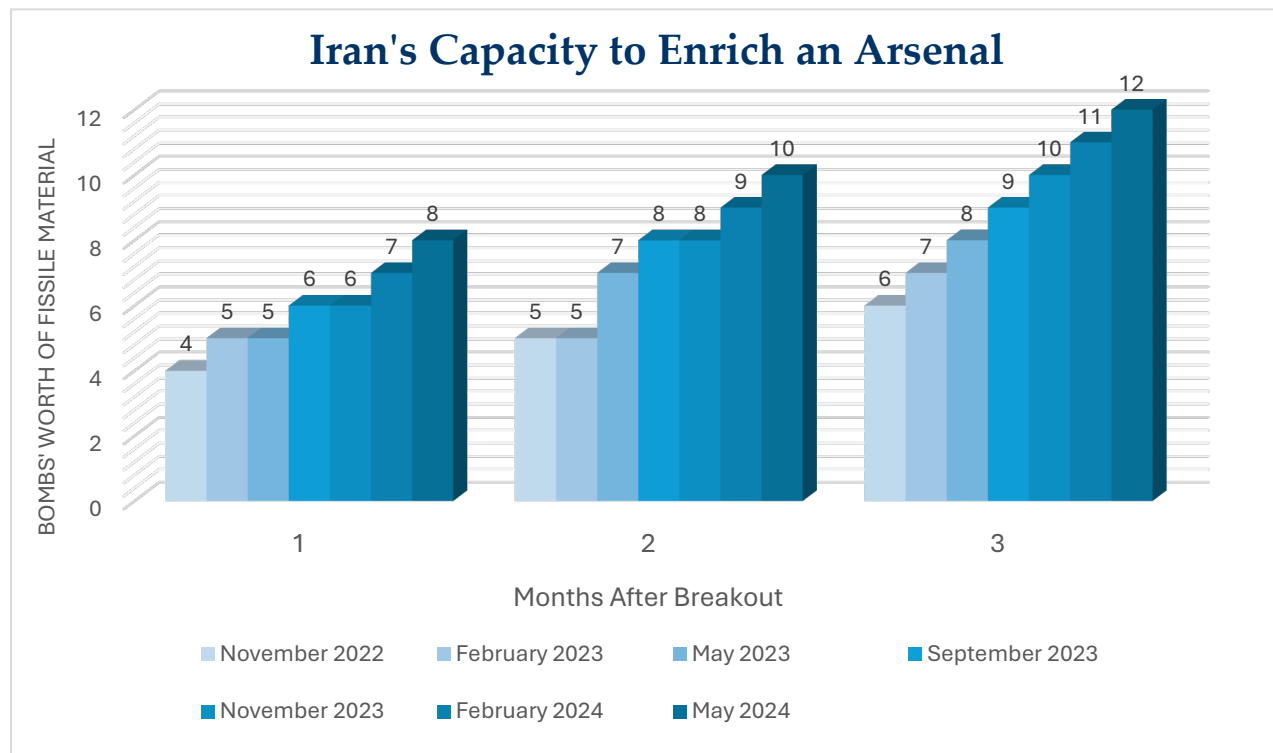
The best hope to prevent an Iranian breakout is to advertise a firm but not overly precise red line. This should only be issued if it is accompanied by a clear track record of kinetic action against Iranian provocations, demonstrating the credibility of U.S. threats, and ideally bolstered by public deliveries of advanced munitions and equipment to the region and Israel and more public bilateral military exercises between the United States and Israel. Additional steps to augment a red line include the passage by Congress of an Authorization for Use of Military Force (AUMF) against Iran's nuclear program and securing a public statement of support from European allies for any U.S./Israeli efforts to prevent a breakout.

I. Iran’s Development Toward a Deployable Nuclear Weapon

The path to an Iranian nuclear weapon requires the combination of two elements: (1) a critical amount of weapons-grade uranium combined with (2) an explosive device, often referred to as the “weapon” or “weaponization.” A workable nuclear weapon alone is capable of posing an enormous threat to international security, but for maximum strategic benefit, this device would be paired with (3) a capable and dependable delivery mechanism.

Iran is making progress towards developing all three of these elements. It has advanced furthest in its enrichment program, but more recently appears to be making strides on the weaponization and delivery fronts as well.

- **Enrichment:** Iran is pursuing the uranium pathway to a bomb, which requires the accumulation of around 16 kilograms (kg) of uranium enriched to 90 percent U-235 (equal to one ‘Significant Quantity’) and turned into uranium metal.
 - » Iran currently has the capacity to enrich eight bombs’ worth of U-235 within one month and 12 bombs’ worth of U-235 within three months. On July 19, 2024, Secretary of State Antony Blinken [said](#) “one or two weeks is probably what the realistic breakout time is” for the first weapon’s worth of uranium.



- » According to a May 27, 2024 International Atomic Energy Agency (IAEA) [report](#), Iran continues to build out its stockpile of highly-enriched uranium.
 - Iran's stockpile of 60 percent enriched uranium has grown to its largest amount to date, 142.1 kg, at least three bombs' worth, and up 20.6 kg from the previous February 2024 report.
 - The IAEA estimates Iran has accumulated a stockpile of 751.3 kg of 20 percent enriched uranium, roughly five bombs' worth, and up 39.1 kg from the February 2024 report.
- » Iran has significant strategic space to escalate horizontally on the enrichment front (i.e. accumulating more highly enriched material at 5 percent, 20 percent or 60 percent purity to increase its feedstock for weapons-grade uranium) in a way that would likely only cause consternation from the West but limited strategic space to escalate vertically (i.e. starting enrichment at 90 percent purity) without risking a kinetic response.
- [Weaponization](#) requires the development of a combination of several advanced components and technical mastery of a triggering system (described further in *Appendix 1* at the end of this paper). Iran began researching and developing nuclear weaponization in its clandestine AMAD Project in the late 1980s until 2003 when the project was suspended according to U.S. [intelligence](#). However, the 2018 Israeli raid on the Iranian nuclear archive demonstrated that Iran had maintained secret and undeclared facilities and information on how to reconstitute its nuclear weapons program, and recovered information [suggesting](#) Iran's goal had been to design, produce, and test nuclear warheads with a 10 kiloton yield for integration on a ballistic missile. In recent years, signs of weaponization research and development activity have mounted.
 - » In August 2021, the IAEA [verified](#) that Iran had conducted research on uranium metal production and had produced uranium metal enriched to 20 percent.
 - » In March 2023, Chairman of the Joint Chiefs of Staff Gen. Mark Milley [told](#) Congress that Iran would only need "several months" to assemble a nuclear weapon for use, should the regime make that decision.
 - » In March 2024, Israeli officials [disclosed](#) that Iran was quickly working to obtain other components needed for a nuclear device.
 - » In June 2024, U.S. and Israeli officials [disclosed](#) that Iran has been conducting computer-based modeling for a nuclear weapon. This activity allows Iran to simulate and research nuclear implosions, compressions, and nuclear yield—key efforts in a nuclear weapons program. U.S. officials reportedly [sent](#) a private warning to Iran regarding these activities.

- » In August 2024, *Iran International* [reported](#) that an Iranian specialist on nuclear detonators was working for the defense ministry on nuclear weapons.
- » Iranian officials have recently started publicly undermining previous statements that Iran does not seek nuclear weapons. In May, Kamal Kharazi, a senior advisor to Khamenei, [warned](#): “We have no decision to build a nuclear bomb but should Iran’s existence be threatened, there will be no choice but to change our military doctrine.”
- » IAEA Director General Rafael Grossi has repeatedly [warned](#) that the IAEA no longer has sufficient visibility to provide fidelity that Iran is not conducting weaponization activities. Many IAEA inspectors have been [kicked out](#) of the country and have a reduced ability to detect whether there are clandestine, undeclared military facilities.
- » The U.S. State Department’s latest May 2024 Arms Control Compliance Report [claimed](#), “The United States continues to assess that Iran is not currently undertaking the key nuclear weapons development activities that we assess would be necessary to produce a testable nuclear device.”
 - The risk that this assessment is wrong or incomplete is serious considering the scope of possible intelligence gaps and the past history of U.S. intelligence analysis errors. Most of these nuclear developments could occur in clandestine facilities off the radar of U.S. and Israeli intelligence and IAEA inspectors.
 - The statement does not parse several important questions, such as whether they are working to produce a “cold” device, how far away from a testable device they remain, and which ancillary steps they have taken.
- » However, a July 2024 [assessment](#) from the Director of National Intelligence omitted the State Department Compliance Report’s years-long language that Iran was not undertaking key nuclear weapons development activity. Instead, the report noted: “There has been a notable increase this year in Iranian public statements about nuclear weapons, suggesting the topic is becoming less taboo.”
- » Escalation in the weaponization area is almost entirely vertical—each component whose research, development, and production are finished represents a step closer to a nuclear device.
- [Delivery mechanism](#) requires the pairing of a functional nuclear weapon with a vehicle capable of reaching its intended target without destruction. The U.S. nuclear triad features a combination of land, air, and sea platforms to grant decision-makers responsiveness, survivability, and flexibility. The American triad is dependable: if the U.S. government decided to use a nuclear weapon, both the United States and its

enemies could reliably predict success. However, Iran does not need a triad to secure its geopolitical objectives. While Iran has developed various delivery systems and advanced its ballistic missile capability, it only needs to provide a reasonable risk of success to achieve the deterrent power of a nuclear weapon. Fortunately, today, the reliability of Iran's existing systems—and their ability to successfully penetrate adversarial air defenses—is still far from guaranteed. However, due to the expiration in October 2023 of a provision of United Nations Security Council Resolution 2231, Iran can now legally acquire advanced technology and systems from Russia, China, or others to overcome these deficiencies.

» **Land-based:** Ballistic missile program.

While Iran has developed a massive arsenal of ballistic missiles, it must still pair a nuclear device on a missile through the miniaturization process and ensure re-entry survivability. It also is [developing](#) reverse-engineered versions of nuclear-capable Soviet Kh-55 land attack cruise missiles (LACM), having obtained roughly a dozen Kh-55s illicitly via Ukraine decades ago. To ensure reliability, they must be able to overwhelm or evade the regional missile defense architecture of its adversaries. Iran's April 2024 assault on Israel embarrassed the regime and its military. Fewer than 10 of the at-least 140 ballistic and cruise missiles launched at Israel succeeded in breaching Israeli and coalition air defenses. However, Iran is also developing an intercontinental ballistic missile (ICBM) capability that would require midcourse interception at a significant distance from Israeli territory. While Israel's Arrow 3 Missile Defense System is technically capable of exo-atmospheric interceptions, the system has limited operational experience to prove its reliability.

» **Air-based:** Strategic bombers or long-range drones.

While Iran currently lacks advanced bombers that could reliably breach Israeli and coalition air defenses, they could potentially pair a nuclear device onto several of their attack [drones](#) with sufficient payload capacity. The capability of advanced drones to carry a nuclear weapon is one reason the transfer of related goods, technology, and equipment was [prohibited](#) under UN Security Council Resolution 2231 (until the provision's expiration in October 2023). However, when Iran launched 170 attack drones at Israel in its April 2024 attack, the vast majority were shot down.

» **Sea-based:** Nuclear-armed ballistic missile submarines.

Iran's submarine fleet is primitive and limited, and as of 2019 did not contain ballistic-missile-capable submarines. Iran faces the same challenges of

miniaturizing and pairing a nuclear warhead with a missile before loading them onto a submarine. Given that the utility of nuclear-armed submarines is their survivability, this delivery method is typically developed by nuclear states only after the land-based and air-based legs of their triads are more fully developed. However, given the expiration in October 2020 of the UN's conventional arms embargo, Iran could legally purchase ballistic-missile submarines from Russia or China in the future.

» **Other:** Smuggled devices and dirty bombs.

In the absence of a reliable delivery method, Iran might seek to smuggle a simple nuclear device or 'dirty' bomb through land borders. This method would only require Iran's ability to penetrate foreign borders through ground transportation. Alternatively, Iran could deliver a bomb as a concealed cargo item brought into an Israeli or other foreign port with little ability for those countries to detect or intercept such a weapon. Such a device would have a reduced destructive yield, compared to an explosion at altitude, but could still be employed to destroy significant parts of target cities, including through radioactive fallout. Iran could theoretically infiltrate such a device into a target country and use its claimed presence to extort the behavior of that government. Moreover, Iran would not need to produce 90 percent enriched uranium, since its existing stocks of 60 percent enriched uranium could provide sufficient fissile material for this relatively crude delivery option.

» Given the expiration in October 2023 of the UN's advanced weapons embargo, Iran can more easily cooperate with Russia and China to develop or procure more effective delivery mechanisms capable of evading existing Israeli and other foreign air defenses. For example, the development or acquisition of a hypersonic missile paired with a nuclear warhead—such as those already claimed by the Russian military—would render Israeli missile defenses nearly obsolete.

- Russia and China might soon use the threat of such technical cooperation and arms sales to extort certain concessions from Western countries and to serve as a form of deterrence against various diplomatic or military steps by the United States, Israel, or others in Europe.

- Iran's weak link in its nuclear development and deployment chain today does not lie in its enrichment program, but rather in the pairing of undetected weaponization with a delivery mechanism that could be guaranteed to hold its enemies at risk.

» Iran's enrichment program is the most fragile and vulnerable element of its nuclear program in terms of U.S. or Israeli military action, and both militaries are likely to have superior intelligence on the location of Iranian enrichment sites. A

weaponization program can be diffuse and far harder to “find, fix, and finish” than an enrichment program.

- » The development by the United States, Israel, and Arab partners of a combined air and missile defense architecture has proven one of the greatest impediments to Iran’s ability to threaten its neighbors and earn the strategic benefits that would normally come with nuclear weapons.

II. Iranian Considerations For and Against Nuclear Breakout

To understand where Iranian decision-makers might take the regime’s nuclear program, it is important to understand why Iran has built out a highly visible enrichment program while advancing weaponization activities in an opaque manner, and why they have decided to suffer punishing U.S. and international sanctions and restrictions for much of this century without actually testing and deploying a nuclear weapon.

The views of top Iranian leaders and national security officials are not monolithic. Iranian decision making is complex and iterative as the regime has been forced to respond and adapt to exposure, pressure, threats, sanctions, and domestic turmoil. Few of the regime’s considerations and strategies surrounding their nuclear program are aired in public, and many of the most bombastic public statements made are not aired by true decision-makers. Still, much can be gleaned and inferred from Iranian actions and inactions:

- Iran’s posture has led the regime to suffer many of the penalties associated with nuclear proliferation without the full benefits of nuclear weapons, such as the perceived prestige and regional status, increased leverage, and improved deterrence.
- At the same time, the Iranian regime has enjoyed several strategic benefits from its advancing nuclear program without having to go all the way. It has used the promise of negotiations to extract a years-long cessation of sanctions enforcement from the United States over 2021-2023. It [traded](#) a temporary and limited reduction in enrichment to earn sanctions waivers from the Biden administration worth billions of dollars. Despite sponsoring and conducting terror attacks across the globe, Iran deters its adversaries from responding in military, diplomatic, and economic realms through the implicit and explicit threat of escalating its nuclear program even further in response. These are powerful benefits that should not be underestimated and

which in part explain why Iran has kept a nuclear program—but not broken out—for nearly 20 years.

- Iranian officials have learned from Pakistan and India’s lessons of delayed breakout (see *Appendix 2* for a comparison of various nations’ nuclear breakouts): that there are benefits from keeping nuclear breakout close at hand as a strategic option. Iran appears to consider a near-nuclear status as its best option; at a later time, it may decide developing but not testing nuclear weapons is ideal, and later may decide to fully test and announce its nuclear status.
- Should Iran fully develop and deploy a nuclear weapon, its ability to extort regional and world powers by leveraging its weapons would increase. It would lose the immediate deterrent against sanctions and diplomatic pressure by taking the step of breakout, but it would also gain several new options for coercive diplomacy with its nuclear arsenal that could offset that one loss.
- For the past five years, Iran has slowly, steadily, and carefully proceeded up the nuclear escalation ladder in a calculated bid to develop negotiating leverage and bring itself closer to a nuclear weapon without moving so fast as to trigger painful diplomatic, economic, or military consequences. However, it is not inevitable that Iran will continue to proceed up the escalation ladder: the regime will do so if its leaders believe the benefits outweigh the risks at each step.
- Iran has a great deal of space to escalate horizontally to enrich, stockpile, and disburse large amounts of highly enriched uranium. However, having perched so closely to a nuclear breakout, the regime has less space to escalate vertically without tempting a military response from the United States and/or Israel.
- Factors that would encourage Iranian leaders to pursue a nuclear breakout include a belief that their conventional deterrent capabilities are sufficient to fully or partially prevent or defeat a kinetic assault against the nuclear program, and that their own and associated forces could penalize aggressors powerfully enough to deter further attacks.
 - » Today, Iran’s nuclear program is in a state of contested deterrence with both sides, Iran and the United States/Israel, trying to press their advantage. Factors that support U.S. and Israeli deterrence are the combination of their military capabilities, their capacity given competing operations (for Israel: destroying Hamas and deterring Hezbollah; for the United States: deterring China and degrading Russia), and the credibility of their threats against Iran’s nuclear breakout.
- Further Iranian tactical considerations in deciding whether to approve a nuclear breakout include:

- » Iran's ability to diversify, disburse, and conceal its nuclear program for survivability and reconstitution in event of strikes. This includes the generation and dispersion of multiple enrichment and weaponization sites, as well as its stockpile of highly enriched uranium feedstock. It also includes Iran's persistent obstruction of IAEA inspectors and their inquiries into suspected undeclared nuclear sites.
- » Iranian leadership's belief that Hezbollah remains able and willing to hold Israel at risk through conventional deterrence—launching a punishing war against Israel in the event of an attack against Iran's nuclear program. Should Israel significantly degrade Hezbollah's capabilities and arsenal of projectiles, Iran would struggle to impose costs on Israel and prevent a U.S or Israeli strike.
- » The Iranian military's trust in its anti-access/area denial (A2/AD) systems, particularly its air defense systems, to destroy incoming Israeli and U.S. aircraft and missiles. An Israeli strike in April 2024 that reportedly [destroyed](#) part of an S-300 air defense battery sent a strategic signal to Iran that Israel remains fully capable of piercing Iran's air defenses. Iran reportedly now [seeks](#) to rapidly acquire upgraded air defense capabilities from Russia that could boost its A2/AD systems.
- Other Iranian diplomatic and strategic considerations impacting whether Iran proceeds further toward nuclear breakout likely include:
 - » An assessment of whether Israeli and U.S. threats are only targeted at Iran's nuclear program or could impose more direct costs on the core of the regime, including targeting of senior leaders, and whether Israel and the United States would seek to or could accomplish a partial or full destruction of the regime's nuclear program.
 - » Internal assessments of the regime's stability, including whether current leadership has the full backing of military, clerical, and political leadership, as well as an assessment of any threats posed by domestic unrest from the Iranian people.
 - » Whether or not diplomatic and economic penalties from Europe and other countries, including Arab neighbors, would be severe, long-lasting, and impede other Iranian government goals, such as economic development and diversification. Would breakout increase the Iranian regime's status as a pariah state, such as befell North Korea, or earn it the grudging respect and deference enjoyed by other nuclear states?
 - Would the United Kingdom and European Union reimpose full pre-JCPOA economic sanctions and snapback sanctions under UN Security Council

Resolution 2231? Do Iranian leaders assess these penalties as severe and detrimental, or as an opportunity to pivot away from economic entanglement with the West?

- » Views from Russian and Chinese governments on any nuclear breakout, including whether they would impose any diplomatic and economic consequences. Alternatively, whether there is encouragement, including any offers of military support in the event of a U.S. or Israeli attack or pledge of economic support to make up for lost business from other nations.
 - Russia's recent efforts at the UN Security Council to protect North Korea from scrutiny likely provides some reassurance to Iranian decision-makers about the lengths its partners will go to protect their partners.
- » Consequences of Iranian breakout in terms of pushing Saudi Arabia or other Arab governments to develop nuclear weapons, and the strategic implications of regional nuclear proliferation, including from Iran's traditional rivals.

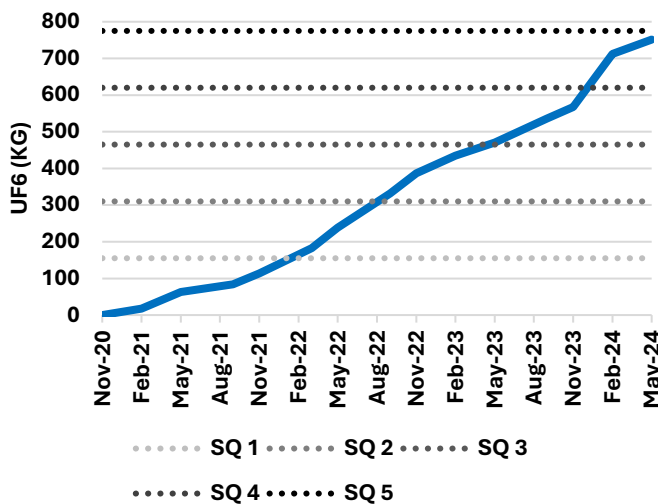
III. Considerations for Israel and the United States in Developing and Issuing a “Red Line”

Preventing an Iranian nuclear breakout can be accomplished through the pairing of diplomatic pressure with credible military threats. One of the most powerful, yet risky, diplomatic tools is the issuance of a “red line.” This option is only powerful when an adversary believes its issuance is sincere and fears the consequences of crossing that line. Issuing a red line entails a series of consequences for the nation issuing it and can only be set at a point that has not yet been crossed. If the military threats issued are either not viewed as credible by the adversary, or if the issuer is not willing to carry out the promised consequences, a red line is useless or even counterproductive. The author is raising this option to clarify for decision-makers the benefits, risks, and considerations for this tool:

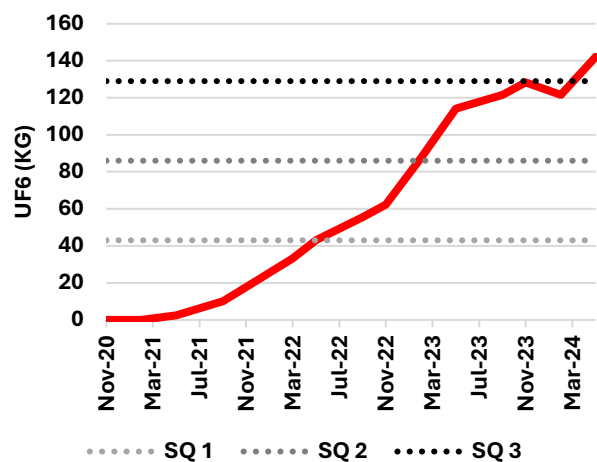
- The development of a red line for Iran's nuclear program could be public or purely internal for strategy and planning purposes.
 - » Public red lines should not be drawn at the point of no return where the risk of dangerous dynamics is at its height, but rather at the point most advantageous to the issuer, one where there is still sufficient time and space to detect the adversary's actions and take enforcement action. Failure to enforce a public red line has severe consequences for the global credibility of the issuer.

- » Public red lines should be clear to the adversary so that they know what activity is unacceptable, but not overly descriptive such that they tacitly permit any and all activity up to that point, and/or are defined so narrowly as to leave open alternative paths for the adversary to accomplish the proscribed goal.
- » Internal red lines can be more precise than those issued publicly. These can serve as useful reference points in moments of crisis and help guide leaders in a more objective and dispassionate manner. Setting internal red lines creates an impediment to the normalization of adversary behavior and the slippage of strategic positioning.
- In either category, it is imperative that those issuing any such warning have as much knowledge about Iran’s nuclear program as possible to prevent errors of drawing a red line that has already been breached, or issuing a red line whose violation would be difficult to detect due to lack of visibility into real-time conditions. Accordingly, ensuring either full IAEA access or exquisite intelligence capabilities is a prerequisite for setting certain red lines with a verification component. Iran fully preventing the IAEA from accessing and verifying its nuclear stockpile and weaponization activities could also be a triggering event for a red line.
- Technical Components of a Red Line: Iran’s nuclear program is complex enough that there are multiple potential actions that could constitute a breach of a red line.

Iran's 20 Percent Stockpile



Iran's 60 Percent Stockpile



- » **Enrichment:** Since Iran has already enriched large amounts of uranium to 60 percent purity, the next logical purity step that could form a red line would be the 90 percent level. This leaves little margin for error, since 60 percent purity already

represents 95 percent of the enrichment work required to enrich uranium to 90 percent purity. In June 2023, Israeli officials publicly [indicated](#) that Iran is aware enrichment at 90 percent purity would cross Israel's red line. Decision-makers should also consider how many accumulated Significant Quantities of uranium at both the 20 percent and 60 percent enrichment levels pose too much of a risk due to their potential dispersal and survivability.

- » **Weaponization:** Considering that much weaponization research and development could be conducted in secret military installations, any detected weaponization activity should not be normalized. Particularly troubling would be evidence of the development and/or acquisition of an arming device, firing device, detonator, fuse, explosive compound, and the neutron generator – as well as any conversion of 60 percent or 90 percent purity U-235 into uranium metal. Explosives testing that could be linked to nuclear research would also be deeply escalatory. Each of these steps could be included as breaches of a red line.
- » **Delivery:** Iran has been violating and defying UN Security Council Resolution prohibitions against ballistic missile activity for decades. Iran has developed a massive arsenal of missiles and advanced their range, payloads, and sophistication enormously. However, one potential element (among others) where the West could set a red line would be in any development and testing of pairing a missile with a miniaturized nuclear warhead or similar technology.
- » **Facilities and Visibility:** Given the continued defiance of Iran in terms of answering the IAEA's outstanding questions about the presence of uranium particles and other nuclear-related activity at non-declared facilities, it is fair to assume that Iran has and continues to have secret nuclear facilities not known to the IAEA. Western policymakers can help deter the development of additional clandestine sites by insinuating that the discovery of new non-disclosed facilities could be interpreted as dangerous activity that would prompt military action. Additionally, Iran kicking out the IAEA or further restricting its access could be announced as unacceptable breaches that indicate Iranian intent to weaponize their nuclear program.
- There are several drawbacks to announcing a red line at various points along Iran's nuclear program, including:
 - » Implicit legitimization of all acts before the red line, such as the enrichment of uranium at 5 percent, 20 percent, and 60 percent, as well as the stockpiling of uranium, ongoing weaponization activity, and defiance of the IAEA. Accordingly, it is helpful to be able to ratchet up and message consequences that would continue for these existing provocations.

- » Risks of undermining U.S. nuclear safeguards agreements with other allies that do not permit domestic enrichment, such as the existing '123 Agreement' with the United Arab Emirates. The perception that the United States tolerates high levels of Iranian enrichment but does not permit this activity for Iran's rivals undermines various counterproliferation norms and goals.
- » The issuance of public red lines binds those who set them to enforce them. Iranian defiance of these lines may come at a time when U.S. and/or Israeli forces are tied down in other conflicts, such as a war between Israel and Hezbollah, or in a war between the United States and China over Taiwan.
- » Any daylight between the United States, E3 (France, Germany, the United Kingdom) and Israel on the setting or discussion of red lines would be exploited by Iran and other powers.
- The military requirements for the credible enforcement of explicit red lines continue to increase as Iran's conventional deterrents, A2/AD capabilities, and proxy militia forces grow in strength. Strategic patience has its limits and drawbacks, particularly that the enemy can use that time to shape conditions to their advantage. Hezbollah in particular has used Israel's hesitation over the past decade to build a massive arsenal to threaten Israel with relative impunity, while Iran has amassed huge numbers of anti-ship ballistic missiles and short-range ballistic missiles that can credibly threaten U.S. bases in the Gulf region and destroy U.S. Navy assets in the vicinity of Iran.
- It is important for policymakers and military planners to differentiate between military options against Iran's enrichment activity and its weaponization activity. While advances in one field may trigger the need for action, the other activity may present itself as a more fruitful area to disrupt. Policymakers should also consider how long a military strike against one activity will actually set the regime back from any efforts of breakout, and what policies are needed to more permanently prevent an Iranian bomb.
- Steps to make a red line(s) more credible, such as by undermining the Iranian military's trust in its active and passive defensive systems for its nuclear program and other regime assets, include:
 - » Enhancing U.S. military readiness, force posture, weapons prepositioning, and both defensive and offensive capabilities in the Middle East.
 - » The transfer of additional aircraft and munitions from the United States to Israel, paired with public training and combined exercises designed to demonstrate shared resolve. Such steps would be mutually-reinforcing with U.S.-Israeli coordination on official red lines.

- » Imposing even higher consequences than expected in response to various Iranian provocations to demonstrate the seriousness of America’s resolve.
- Alternatives and supplements to setting a public red line include:
 - » The passage by Congress of an Authorization for the Use of Military Force (AUMF) to further empower the president to take all necessary military decisions with the full backing of the legislative branch. This AUMF could also be conditionally activated, serving as a legislative red line whose crossing further empowers the executive branch to act with greater legal authority than its inherent Article II powers.
 - » Targeted destruction and/or sabotage of elements of Iran’s nuclear program, including the elimination of mission critical personnel.
 - » Clear commitment from European and other world leaders to impose and pursue consequences—including in the form of passage of a binding UN Security Council Resolution—should Iran develop a nuclear weapon or pass other elements considered in a red line. This could include the extension and modification of UN Security Council Resolution 2231 to designate the permanent return of UN arms transfer prohibitions should Iran cross certain lines. The United States should also seek European public commitments to downgrade or sever diplomatic ties with Iran as a deterrent against certain nuclear developments.

IV. Conclusions and Further Recommendations

In the past few years, Iran has blown by countless nuclear barriers and milestones that might have been considered red lines by prior U.S. and Israeli leaders. Israeli Prime Minister Benjamin Netanyahu’s famous 2012 red line was [considered](#) by many analysts as referring to the point at which Iran accumulated enough uranium enriched at 20 percent purity for one weapon. The Iranian regime is leaps and bounds ahead of that mark today.

The Russian invasion of Ukraine in 2022 demonstrated a hard reality: war is interested in the West, whether or not the West recognizes its face. While America’s leaders have looked the other way, the Iranian regime has brought itself to the brink of a weapon and is tempting war with the West. If the United States and Israel are serious about preventing an Iranian bomb, open conflict may in fact be inevitable based on how far Iran has progressed. Now, the question is how to best resolve and manage the difficult space we are in today.

The stakes are high. Stopping Iran before it irreversibly crosses the nuclear threshold will require an extremely careful course of action that takes the following considerations into account:

- Policymakers should not allow themselves to be the frog slowly boiled in a pot, tolerating today what was believed or stated to be unacceptable at an earlier time. Policymakers need to be cognizant of a severe credibility deficit with Iran that must finally be overcome. Interim steps to bolster U.S. credibility—across all issue sets and domains—would bolster the efficacy of any future threat. In particular, the United States must respond far more aggressively to any attacks against U.S. servicemembers in the region, and should impose a proactive [punishment](#) for the ongoing Iranian assassination plots against current and former senior U.S. leaders in the U.S. homeland that have persisted for four years.
- Any publicly set red line must be one that we are willing to enforce. Failure here would be more catastrophic than the Syrian red line issued in 2012 since the stakes are higher. Accordingly, the issuance of any red line must have both the requisite military requirements to support its enforcement, as well as sufficient political support internally to back it up and ensure it is not renege upon.
- Measures short of an issuance of a red line should be taken first, including passage by Congress of a proactive AUMF to strengthen and support the president’s existing legal authorities, more joint military trainings and exercises, and more forceful public statements of U.S. and Israeli cooperation and willingness to respond to any Iranian or proxy counteroffensive.
- The new EU, French, and UK leadership coming into office in summer 2024 provides a critical opportunity for U.S. and Israeli officials to seek closer cooperation and alignment on these questions and create a more unified and adamant policy against Iranian nuclear breakout. While U.S. and Israeli leaders have often been frustrated by the inflexible and stubborn European approach, now is a good opportunity to take another crack at improving Western relationships; Iran’s program continues to advance and the regime’s ties to Russia and China deepen. The United States should request public statements of support from European allies for any military actions deemed necessary to prevent an Iranian nuclear breakout.

Appendix 1: Technical Steps Toward Weaponization

The weaponization process requires the development of a combination of several discrete components, [including](#): a casing, a power source, arming device, firing device, detonator, fuse, explosive compound, neutron generator, reflector, and safety device, as well as optional tampers to shape the explosion and security devices to prevent unintended deployment of the weapon. Technical steps also include the mastery of the high explosive triggering system, the molding and machining of high explosives, and the building of a neutron initiator that starts the chain reaction at just the right moment to create a nuclear explosion, according to [analysis](#) by Institute for Science and International Security. There is little public information on which of these components, assembly, and research steps Iran has already completed.

Nuclear “breakout” is a continuum: not all elements must be taken in a certain order. There are several steps along the ladder of nuclear escalation that Iran can still take—each of which the West should develop strategies and plans to deter, prevent, and penalize:

- Increased installation of advanced centrifuges and increasing enrichment capacity.
- Continued enrichment and stockpiling of uranium to 20 and 60 percent U-235.
- Starting enrichment of uranium to weapons’ grade beyond 60 percent purity U-235.
- Amassing one or more Significant Quantities of 90 percent purity U-235.
- Conversion of 90 percent purity U-235 into uranium metal.
- Advanced weaponization research and development.
- Development of clandestine nuclear facilities.
- Formal suspension of IAEA cooperation, eviction of IAEA inspectors and removal of IAEA monitoring/verification equipment.
- Formal withdrawal from the Nuclear Non-Proliferation Treaty (NPT).
- Assembling a complete nuclear device.
- Announcing the development of a nuclear device.
- Testing a nuclear device and associated announcements.
- Further research, development, and testing of ballistic missiles.

Appendix 2: Synopsis of Weaponization Breakouts and Announcements – and Lessons Learned

As nuclear non-proliferation norms advanced over the 20th century, the cost/benefit analysis has changed for nations interested in pursuing a nuclear weapon. Iran has taken lessons from the nuclear programs and strategies of the three newest members of the nuclear club (India, Pakistan, and North Korea), both in the slow and strategic development of enrichment and weaponization capabilities as well as using its program as leverage for other foreign policy and military goals.

- The programs of the first five nuclear powers (now the “P5” Permanent UN Security Council Members: **United States, United Kingdom, Soviet Union/Russia, France, People’s Republic of China**) featured covert and rapid enrichment and weaponization breakouts followed rapidly by testing in relatively condensed timelines. Each nation—with the possible caveat of China—had strong conventional military deterrents and large territories to disperse nuclear programs, testing sites, and military sites. None of these nations faced significant military or economic threats specifically targeted to their deployment and testing of nuclear weapons.
 - » The United States’ Manhattan Project succeeded in developing a nuclear weapon in under four years, but the U.S. only [announced](#) its breakthrough after dropping the first bomb on Hiroshima, Japan.
 - » The Soviet’s nuclear program accelerated after U.S. deployment of their bombs in 1945 and brought about the first Soviet test in 1949. The existence of the Soviet bomb was first publicly [confirmed](#) by U.S. President Harry Truman, who [preempted](#) the Soviet announcement, likely startling the Soviets who did not realize the U.S. ability to detect atmospheric tests.
 - » The United Kingdom, which had participated in the Manhattan Project, spun off its own nuclear program in 1947. Prime Minister Winston Churchill announced the completion of the UK’s bomb in February 1952 and completed its first weapon test in October 1952.
 - » France authorized a nuclear weapons program in late 1954 and tested its first weapon in 1960, which was immediately announced by French President Charles de Gaulle. The United States had advanced [intelligence](#) on France’s program in advance of its tests.
 - » The Chinese nuclear effort started in 1954 and tested its first uranium weapon in 1964. The Chinese Communist Party announced the test immediately. U.S. President Lyndon B. Johnson responded the same day [claiming](#) “this explosion comes as no surprise to the United States Government.”

- The nuclear programs of India and Pakistan developed in stealthier fashions as international counterproliferation norms and rules advanced through the NPT that went into effect in 1970, though neither country has ever signed the NPT. Both nations developed nuclear weapons years in advance of their testing and public announcements, relying on strategic ambiguity beforehand. Their decisions to officially break out and test their weapons have been messaged as being sparked by perceptions of heightened risks and the insecurity surrounding their conventional deterrents.
 - » India’s nuclear program started around 1967 and tested a low-yield fission nuclear device in 1974, which it claimed was a “peaceful nuclear explosion.” In 1998, India tested a series of five fission and fusion weapons—India’s only tests since the 1974 explosion. However, India had likely completed the production of nuclear weapons around 1994-1995 and waited to test its weapons during a period of heightened tensions with Pakistan. India’s Prime Minister [claimed](#) the tests were sparked by a “deteriorating security environment” with China and Pakistan.
 - » Pakistan initiated its nuclear program in 1972 and conducted 24 “cold tests” from 1983 to 1994. Pakistan only announced its nuclear weapons status when it conducted a series of five “hot” weapons tests in 1998 just weeks after India’s nuclear tests.
- North Korea started nuclear enrichment in the 1980s then paused some of its nuclear activity in the 1990s under the 1994 Agreed Framework. However, North Korea was cheating on the agreement in the 1990s and escalated its activities from 2002 through its first nuclear test in 2006. Unlike India and Pakistan, North Korea had not been subjected to military threats from its neighbors, but rather was the nation initiating threats against its perceived enemies—particularly the United States.
- Other potential nuclear powers have either had their nascent efforts blocked through military action (such as Israel’s attack against Syria’s nuclear reactors and the U.S. invasion of Iraq in 2003) or been convinced to abandon their programs, including South Africa, which had already developed and possibly tested nuclear weapons, and Libya, which abandoned its program in the aftermath of the U.S. invasion of Iraq.

Iranian and U.S. Lessons Learned

- Iran has taken lessons from the nuclear programs and strategies of India, Pakistan, and North Korea, both in the slow and strategic development of enrichment and weaponization capabilities as well as in using a nuclear program as leverage for other foreign policy and military goals.
- India and Pakistan’s nuclear programs developed in stealthier fashions over multiple decades. Both nations developed nuclear weapons years in advance of their testing and public announcements, relying on strategic ambiguity beforehand.
- In the cases of India, Pakistan, and North Korea, Western intelligence officials appeared surprised by how rapidly each nation managed to test workable nuclear devices after being given the approval from their political leadership. In the case of Iran, the limited timeframe to disrupt a test poses a problem for Western decision makers. From the moment that approval by Iranian leadership has both been given and detected, it may inhibit certain military options. For example, the United States may not have adequate time to relocate and prepare offensive strike capabilities, missile defenses, and supporting assets to the region in time for a pre-emptive strike.
 - » The less certainty Western intelligence and political leaders have about Iran’s capabilities and intent, the earlier a decision to strike would need to be given in order to ensure the action is not too late. Accordingly, Iranian leadership may have some interest in maintaining a certain level of largely superficial or ostensible cooperation with the IAEA to prevent miscalculations from their adversaries.
- Unlike the current nuclear powers, Iran’s potential nuclear breakout has been countered from the start with explicit and implicit threats of military preemption from both Israel and the United States. Other current nuclear powers benefitted from strong conventional deterrents and powerful militaries that largely precluded other nuclear powers from preventing their breakout.