

Iran's Evolving Nuclear Program and Implications for U.S. Policy

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Odds that the Iran nuclear deal can be revived have diminished over recent months. The new presidential administration in Iran has repeatedly said that it plans to resume talks in Vienna to resuscitate the deal “**very soon**” but without providing a date, leading many to fear that Iranian leaders are stalling while they build up their nuclear program for negotiating leverage. The United States has responded that the door to reviving the Joint Comprehensive Plan of Action (JCPOA) will not remain open forever: The expansion of Iran’s nuclear program is eroding the nonproliferation value of the deal and, at some point, returning to the deal will no longer be in the United States’ interest.

What are those technical changes underway in Iran’s nuclear program? And why exactly might they imperil a chance at restoring the JCPOA? Those are important questions, and ones that this paper attempts to address, but they are not the only important questions. The technical developments taking place will remain relevant if and when the original participants in the nuclear deal reconvene in Vienna to negotiate its revival. Indeed, changes to Iran’s nuclear program and related elements—particularly over the past year, but some going back longer—have implications that go beyond the JCPOA. These changes—a mix of progress in some areas and setbacks in others—not only make a return to the original JCPOA more difficult, but they will also require that the United States rethink how to detect any future attempt by Iran to build nuclear weapons as well as the benefits and risks of various policy options for containing Iran’s nuclear program.

These technical developments and their implications can be broken down into three general areas.

- 1. Iran’s progress on enrichment has improved Tehran’s ability to produce weapons-grade uranium and could soon make it difficult, if not impossible, to restore the one-year breakout timeline associated with the JCPOA. If this were to happen, the chances of revitalizing the nuclear deal would reduce even further. The United States and the international community would need to adapt to a world in which Iran’s breakout timeline, even in a best case scenario, is months rather than years.**

The JCPOA contained key restrictions on Iran's enrichment program that, until about 2026, would have kept Iran's breakout timeline—that is, the amount of time Iran would need to produce enough enriched material for a bomb—to one year. Those restrictions included limits on the amount of enriched uranium Iran could produce, the level of that enrichment, and the number of centrifuges Iran could install and use. Importantly, these restrictions also included limits on the number and type of advanced centrifuges that Iran could manufacture and test as part of its centrifuge research and development (R&D) effort.

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Beginning in mid-2019—a year after the United States withdrew from the deal—Iran began violating these JCPOA requirements. It began gradually **at first**, but as of January 2020, it **stopped recognizing** most key limits on its enrichment program. As a result, Iran's breakout timeline has **reportedly** shrunk to just a couple of months. While these actions can be reversed to restore compliance with the JCPOA (e.g., enriched material can be down blended or shipped out, and centrifuges removed), **there is concern** that the knowledge Iran has gained as part of this nuclear expansion could soon make longer breakout timelines a thing of the past.

Two actions in particular stand out as enhancing Iran's knowledge in ways that could fundamentally alter the feasibility of a one-year breakout timeline: Iran's production of 60 percent enriched uranium and its expanded use of advanced centrifuges.

In April 2021, Iran **began** enriching to 60 percent using a cascade of IR-6 centrifuges at the above-ground Pilot Fuel Enrichment Plant. This marks the first time Iran has produced highly enriched uranium, though it is still short of the 90 percent enriched uranium that is often used as the marker for "weapons grade." As International Atomic Energy Agency's (IAEA) Director General Grossi **stated** candidly, "only countries making bombs" are enriching to 60 percent. The IAEA **reported** that in August Iran accelerated its production of this material and began using a combination of IR-4 and IR-6 centrifuges to carry out the enrichment. As **noted** by David Albright, Sara Brukhard, and Andrea Stricker, though the amount of 60 percent Iran has produced is still relatively small, the ways in which it is going about the enrichment process—including by starting at 5 percent and going directly to 60 percent rather than first enriching to 20 percent as an interim step—could give Iran valuable skills that allow it to break out more quickly in the future, should it choose to do so.

More important though is the progress Iran has made on advanced centrifuges—more powerful machines that can enrich uranium far faster than Iran's IR-1s, its first-generation machine that has made up the bulk of its enrichment efforts since the program began. For example, prior to the Joint Plan of Action (the JCPOA's 2013 predecessor that initiated curbs on Iran's nuclear activity), Iran **had installed** but not begun using six IR-2m centrifuge cascades at the Natanz Fuel Enrichment Plant. Since abandoning the JCPOA's limits, Iran **reinstalled** and began operating those cascades, installed and began operating IR-4 cascades, and plans to add additional IR-4 and IR-6 cascades. Similarly, **before the JCPOA**, Iran was feeding gas into single machines or cascades of various sizes of IR-1, IR-2m, IR-4, and IR-6 centrifuges at its above-ground Pilot Fuel Enrichment Plant (where the bulk of Iran's enrichment R&D takes place). **As of August**, it was using multiple cascades of IR-4 and IR-6 centrifuges to produce 60 percent enriched uranium and has

expanded the number and type of other advanced centrifuges it is testing at the facility. It also has [plans](#) to begin the operation of IR-6 cascades at the Fordow Fuel Enrichment Plant.

Iran's one-year breakout timeline was not enshrined in the agreement. Rather, it was [the deliberate result](#) of the restrictions the United States sought and painstakingly negotiated. Although not specified in the deal, keeping Iran a year away from having enough material for a bomb was a key U.S. negotiating objective and one of the most important [selling points](#) of the deal domestically.

But breakout timeline estimates are just that—[estimates](#). They were and are based on a [range of assessments and assumptions](#) about Iran's capabilities, how Iran would choose to use them in a breakout scenario, and how they would perform. It is precisely Iran's expanded work with advanced centrifuges—work that would have been prohibited under the JCPOA—that has [apparently led](#) Western governments to question their old assumptions about the types of centrifuges Iran would use.

Prior to the JCPOA, Iran's limited experience with advanced centrifuges meant that Iran probably would not use them in a breakout, relying instead on its first-generation IR-1 centrifuge. Iran's progress with the more advanced machines over the last several months—most importantly, the IR-2Ms—has [reportedly led](#) analysts to conclude that Iran has or soon will be confident enough in the performance of those centrifuges that it would be willing to use them in a breakout. This confidence cannot be wiped away simply by removing the machines themselves. This very risk—that Iran's technical progress could erase the nonproliferation benefits of returning to the JCPOA—has been [repeatedly highlighted](#) by U.S. officials.

If Iran were to reach this point, the one-year breakout timeline may be unrecoverable unless Iran made additional changes to its nuclear program that go beyond those of the original deal (e.g., having even fewer centrifuges or a lower stockpile of material). These are changes Iran would be likely to reject, and not without reason: while the one-year timeline may be politically important to the United States, it is not in the JCPOA, and thus of far less relevance to Tehran.

The technical benefits that Iran accrues from these advanced machines potentially explain why a country, almost certainly Israel, has carried out [acts of sabotage](#) targeting those elements of Iran's program. This includes a July 2020 [explosion](#) that destroyed a key location Iran used to assemble advanced centrifuges and an April 2021 [explosion](#) at Iran's underground Natanz enrichment facility that caused significant damage. JCPOA supporters [often condemn](#) Israeli sabotage as an attempt to spoil diplomacy and worry that it will lead Iran to further escalate its nuclear program—a goal Israel may well have and a real potential concern. But if such acts help delay Iran from mastering those technologies and thus keep the one-year breakout timeline—and potential for JCPOA revival—alive, that benefit may well be worth the risk.

There is nothing magical about the one-year breakout timeline from the standpoint of detecting and preventing an Iranian nuclear weapon. With the monitoring provisions of the deal in place, the United States would almost certainly be able to detect a breakout attempt and have time to respond in a matter of months. As a result, it is unlikely that Iran would choose to breakout. From this standpoint, returning to a deal without a one-year breakout timeline presents a manageable risk. Precisely what breakout timeline is acceptable is beyond the scope of this analysis and would depend on a range of factors, including the monitoring mechanisms on Iran's program, the scope and scale of that program, and preferences for a diplomatic versus a military response. But any future decision to accept a shorter breakout timeline will be heavily colored by politics given the skepticism of—and in some cases outright hostility to—the JCPOA within Congress. In any event, if Iran's nuclear progress cannot be slowed soon, the United States may have to adjust to a new reality that achieving a one-year breakout timeline, let alone extending that timeline, is simply no longer achievable.

2. **Iran’s recent production of uranium metal at its declared facility in Esfahan gives Iran experience with another critical step of building a nuclear weapon—taking the enriched material and converting it into a form that can be used for the core of a nuclear device.**

Producing the fissile material for a nuclear weapon (addressed above in the first point) is a key technical pillar for producing the bomb, but that material must then be converted into a metallic form, cast into a nuclear core, and then packaged with conventional explosives and other components to make a nuclear device.

In February 2021, Iran **began** producing small quantities of uranium metal at a research laboratory in Esfahan. The production of this material—done at a declared nuclear facility under IAEA monitoring—was in line with **a law** passed by the Iranian parliament in December 2020 that required the Iranian government to undertake a series of nuclear activities. In July 2021, Iran **began** producing uranium metal that is enriched to 20 percent—far closer to the 90 percent level needed to produce nuclear weapons. While Iran **claims** this is for nuclear fuel rather than a bomb and the material produced is not suitable for nuclear weapons, it nevertheless gives Iran valuable skills and capabilities that are **nuclear weapons relevant** and could be applied toward that end.

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This is not the first time Iran has produced uranium metal. Between 1995 and 2002, Iran **carried out** experiments converting uranium tetrafluoride to uranium metal—activities that it did not report to the IAEA at the time. Additionally, as part of its previous nuclear weapons program, Iran sought to construct and outfit two facilities—one pilot and one production-scale—to produce weapons-grade uranium metal cores. Iran abandoned these efforts when that weapons program was halted in 2003.¹ Iran’s recent uranium metal production activities are obviously quite different: they are declared to the IAEA, they only relate to the first step in a process of producing material for a nuclear core (unlike the ambitious efforts prior to 2003), and there is no evidence they are tied to a broader nuclear weapons program. Nevertheless, they provide Iran with a new capability and added—or at least refreshed—skills. Moreover, as mentioned above, Tehran’s recent uranium metal production involves 20 percent enriched uranium—closer to the 90 percent that would be required for nuclear weapons. This does not mean that Iran has restarted its nuclear weapons program, but Iranian officials probably view these activities, at least in part, as in line with their **longstanding strategy** of trying to develop and retain a nuclear weapons “option.”

Not surprisingly, Iran’s production of uranium metal has alarmed the United States, Europe, and the IAEA. The United States expressed **concern** that Iran was engaging in “experiments that have value for nuclear weapons research.” The E3 (France, Germany, and the United Kingdom) went even further, **describing** this activity as “a key step in the development of a nuclear weapon.”

Given that phrasing, it is possible that this activity will cause the United States to alter its assessment—last issued in April 2021 as part of the Department of State’s **annual report** on countries’ adherence to nonproliferation treaties, but that covered the time period before uranium metal production began—that “Iran is not currently engaged in key activities associated with the design and development of a nuclear

1. For a detailed analysis of these efforts and other elements of Iran’s former weapons program, see David Albright and Sarah Burkhard, *Iran’s Perilous Pursuit of Nuclear Weapons* (Washington, DC: Institute for Science and International Security Press, 2021).

weapon.” That assessment is potentially in tension with the U.S. and EU characterization of Iran’s uranium metal production mentioned above.

In a best-case scenario, Iran ceases these efforts and disassembles the equipment either as part of a revival of the JCPOA or, failing that, a new deal. But the longer they go on, the more skills Iran will gain in an arena relevant to nuclear weapons that it was prohibited from engaging in under the nuclear deal for 15 years. This research is, in addition to the enrichment activities described above, likely another reason why U.S. officials worry that there will soon come a point where returning to the deal does not have the nonproliferation value it once did.

- 3. While Iran’s civilian nuclear program has made extensive progress, the military researchers in charge of Iran’s former weapons program—and who would be the logical choice for any resumed weapons effort—have seemingly suffered a string of setbacks. As a result, the status quo in Iran regarding which organizations have which types of nuclear weapons-relevant expertise may be changing. This will likely have implications for where Iran might turn for any future nuclear weapons project, and how the United States and the international community may need to adjust their efforts to detect and deter any future weapons program.**

Since at least 2007—when the intelligence community [first assessed](#) that Iran had a dedicated nuclear weapons program and that the program was halted in 2003—the United States has [made the distinction](#) between Iran’s declared, IAEA-monitored fuel cycle activities (e.g., enrichment) run by the civilian Atomic Energy Organization of Iran (AEOI) and the more secretive nuclear weapons work that was carried out by military researchers as part of Iran’s nuclear weapons program (known as the Amad Plan). The head of that former program, Mohsen Fakhrizadeh, and many of its associates remained together under a [series of successor military organizations](#) after the Amad Plan. These organizations ultimately evolved into a group known as SPND (its Farsi acronym). According to the [U.S. Department of State](#), Iran sought to keep these “former weapons program scientists employed . . . on weaponization-relevant dual-use technical activities.”

Publicly available information is scant on the specific activities these former researchers have been involved in after Iran’s weapons program ended. This has led to varied expert opinions about whether these organizational changes were just a [reorganized—albeit less urgent—nuclear weapons program](#), or an effort [to keep the former program on ice](#) in case Iran decided to turn it back on at a future date. The U.S. government appears to have consistently come down on the latter position. For example, the intelligence community [concluded in the 2007 National Intelligence Estimate \(NIE\)](#) that:

Iranian entities are continuing to develop a range of technical capabilities that could be applied to producing nuclear weapons, if a decision is made to do so. For example . . . We also assess with high confidence that since fall 2003, Iran has been conducting research and development projects with commercial and conventional military applications—some of which would also be of limited use for nuclear weapons.

[According to](#) former national intelligence officer Vann Van Diepen, who oversaw the drafting of the 2007 NIE, the intelligence community believed that those research projects that continued after 2003 were “capable of making very limited contributions to Iranian weaponization and thus were better suited to preserving rather than progressing Iran’s nuclear weapons capabilities.” This characterization is also [consistent](#) with the IAEA’s findings that some research that could be applied to nuclear weapons occurred after 2003. As of 2020, the United States also [continued to believe](#) that Iran was not currently engaged in the most important activities associated with building a nuclear bomb.

Nevertheless, the skill set of this organization and its personnel, their affiliation with Iran's past weapons program, and ties to the military (unlike the AEOI, they were not subject to routine monitoring by international inspectors) make it the obvious "go-to" for Iran should its leaders decide to resume a nuclear weapons program. This has made its activities **of high interest** to the international community and the IAEA.

Indeed, it was these concerns that fueled a campaign—almost certainly carried out by Israel—to degrade and expose Iran's capabilities through espionage and assassinations. From 2010 to 2020, five Iranian scientists with connections to the nuclear program **were assassinated**. At least two of those individuals—Majid Shariari and Masoud Alimohammadi—were **key individuals** in the former weapons program and were involved in plans to continue with some research activities after the halt. Ferydoun Abbasi-Davani, who was the target of a failed assassination attempt and who would eventually go on to become the head of the AEOI, **was also involved** in those weaponization research efforts. These assassinations, **continued IAEA investigations**, and the theft of the archives have surely resulted in significant **pressure, embarrassment**, as well as perhaps even the loss of morale and expertise.

The tendency among experts has been **to downplay** the impact of these developments on Iran's ability to build a nuclear weapon. For example, nonproliferation experts **have noted** that Fakhrizadeh was not irreplaceable and had likely passed on his knowledge to the next generation of Iranian scientists. Others **have claimed** that the assassinations might have even hardened Iran's determination to get the bomb.

But there is an equally good—perhaps even better—case that a long string of setbacks may have degraded Iran's ability to move forward with a bomb project. This is not to say that building a bomb would be impossible for Iran or that new hurdles would be insurmountable, only that it would take longer and be harder than it might have been years ago. Indeed, a senior Israeli intelligence official recently **stated** that while Iran's enrichment program has advanced, there has been "no progress . . . in the weapons project" and that even after a breakout Iran would have "a long way to go" to get the bomb.

How could this have happened? The loss of the nuclear archives is not only **an embarrassment** for Iran's national security establishment; it could also make it harder to restart a weapons program. If Iran truly hasn't engaged in some of that research in nearly 20 years, the availability of that information would have been incredibly useful for whoever picked up the baton. True, others within the military research establishment may have similar expertise as those assassinated, and Iran could certainly develop new plans and repeat old experiments. But doing so may take longer than if Iran had those scientists and information at the ready. How much of an impact the loss of the archives has on Tehran's ability to resume a weapons program also depends on whether there are similar "archives" or backup copies stashed elsewhere in Iran.

Similarly, Fakhrizadeh's assassination is probably less about the loss of scientific acumen and more about the loss of a nuclear weapons champion within the Iranian government and a skilled manager. Again, because we have few details about Fakhrizadeh or his role in Iran's research since the halt, it is hard to assess the impact of his death. If, for example, Fakhrizadeh was merely a figurehead with little responsibility or sway, then his assassination may mean little. But if, **as some accounts suggest**, he was the glue that held the former nuclear weapons cadre together and was a source of nuclear weapons advocacy within the regime, then his assassination could have a far greater impact. Indeed, **research** has shown that effective program management and **sustained political support** for a nuclear weapons effort—even if, as in the case of Iran, such an effort remained on hold—is critical to the program's survival. As Amos Yadlin and Assaf Orion **speculated** at the time of Fakhrizadeh's death, "The damage

to the nuclear weapons effort . . . is not necessarily due to the loss of scientific knowledge, but due to the loss of project leadership, managerial experience, and access to Iran’s top political echelon—salient Fakhrizadeh assets.”

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In addition to the potential for reduced capacity for weaponization work, many of these factors above also raise the question of whether it would be wise for Iran to use this group for a resumed weapons project. The theft of the archives, continued IAEA investigations, and assassinations make it abundantly clear that this group and their work has been penetrated by foreign intelligence organizations and are under an international microscope. Similarly, Iran’s hopes that the JCPOA would forever close the IAEA’s investigation into the activities of Amad-era researchers **have been dashed**. The IAEA has, if anything, **become more vocal** about its concerns over the past few years and continues to insist that Iran provide answers. This raises major questions about whether Iran could keep a nuclear weapons program run by SPND a secret and whether Iranian leaders would actually turn to SPND for a renewed weapons program.

If Iran concludes the risks of turning to SPND are too high, but yet it still perceives a need to begin a covert weapons program, where else might Iran turn to for bomb-making assistance? The AEOI’s mastery of enrichment with increasingly powerful centrifuges and now its work producing uranium metal shows that Iran may be able to make progress on some weapons-relevant work in broad daylight. Although using these IAEA-monitored capabilities to actually dash toward the bomb would be highly risky, the skills and expertise could be applied to covert projects. Iran’s progress on its **missile program** offers another potential source of some relevant skills. There is no credible evidence that Iran has ever received assistance from North Korea on nuclear weapons, but **reports** of resumed missile cooperation highlight that this is a connection that must continue to be monitored.

Collectively, these changes mean that the United States can’t rely on old assumptions when it comes to thinking about how Iran might go about producing a nuclear weapon and how best to detect and prevent it.

Policy Implications and Options

The best option would be to quickly conclude negotiations to revive the JCPOA or, failing that, an interim deal that limits Iran’s advanced centrifuge work, enrichment activity, and uranium metal research. This would buy time and prevent Iran’s program from reaching the point where the nonproliferation benefits are impossible to recover. Yet at this time neither of those scenarios seems likely, and the fate of the deal is largely in Iran’s hands—outside of U.S. control. So if the JCPOA cannot be saved, what are the policy implications, and what options should the United States pursue given the developments identified above?

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IMPLICATIONS:

- Hopes for restoring a one-year breakout timeline—or lengthening the timeline even further as part of a longer, stronger deal—may be unachievable. As a result, the United States will have to contend for the foreseeable future with shorter Iranian breakout timelines than some would prefer. For diplomacy, this would mean the United States should shift its focus toward tightening and in some cases making permanent enhanced monitoring measures that would allow the international community to be confident that it would detect a breakout quickly and in perpetuity.
- A return to a series of tit-for-tat escalatory steps between the United States and Iran could be more dangerous this time around because there is less “headroom” for Iran to escalate on the nuclear front. Concerns are once again mounting that if the JCPOA can’t be resumed soon, the United States and Iran will kick off a cycle of nuclear provocations and sanctions—and perhaps even other forms of covert deniable attacks such as cyber warfare or Iranian-backed terrorist attacks—similar to the mid-to-late 2000s until 2012. The problem with that analogy is that Iran’s program is far more advanced now than it was in the 2000s when Iran was just beginning enrichment with its first-generation centrifuges. As a result, many of the items remaining on the menu of options for nuclear escalation—such as going higher than 60 percent—would be highly provocative. This increases the risk that Iran might miscalculate by incorrectly assuming that the United States or its allies won’t respond. On the other hand, the risk of escalation may force Iran to determine that it needs to return to negotiations and strike a deal to lower tensions.
- There is a risk that if Iran’s nuclear program becomes sufficiently advanced and Iranian officials conclude that the ability to build nuclear weapons quickly provides it with an adequate—and necessary—deterrent, Tehran will feel far less compelled to make nuclear concessions, even for significant sanctions relief. This will depend on a range of factors, but if Tehran concludes that its ability to build nuclear weapons provides a key source of security—even if that judgment is incorrect—it may feel inclined to wait out pressure and try and force international acceptance of its status as a threshold nuclear state.
- To what degree is Iran’s nuclear weapons past a roadmap for any nuclear weapons future? In other words, if Iran ever decides to restart a weapons program, how much will its goals, plans, and progress during the Amad Plan—a plan that ended nearly 20 years ago—inform such an effort? As noted above, leaders and personnel have changed. Capabilities and where they reside within Iranian organizations have likely changed as well. Lessons have no doubt been learned. Strategic circumstances today and perceived security needs in the future may be vastly different than in the late 1990s when the program began. This points to a need for analysts to be creative when thinking about potential nuclear weapons pathways for Iran and not be imprisoned by old assumptions and information.
- The good news is that the U.S. strategy of consulting with allies, making a clean return to the JCPOA the centerpiece of its policy, and negotiating seriously and in good faith to do so, will pay diplomatic dividends for wherever it pivots next. That doesn’t mean that Russia or China will immediately support a renewed sanctions effort, but the United States can convincingly make the case that it tried to return to the JCPOA, thereby putting the ball in Iran’s court and reducing international opposition to a future policy pivot.

POLICY RECOMMENDATIONS:

- **Redouble U.S. and allied intelligence collection on Iran’s nuclear program.** Reduced IAEA access and shortening breakout timelines will require the United States to rely more on its intelligence apparatus and that of its close partners to detect any attempts at breakout or “sneak out.” As a result of Iran’s technical progress, warning windows—the period between detection of an action and the foreclosure

of policy opportunities to stop the action—may be shorter. Dialogue between intelligence leaders, policymakers, and Congress should be ongoing and clear on what U.S. intelligence can and can't do when it comes to detecting an Iranian nuclear weapons effort.

- **Keep the diplomatic door open.** There is substantial benefit and little risk for the United States to maintain a willingness to meet with Iran anywhere and anytime to resume diplomacy and try and reach a deal, even if Iran refuses to take the United States up on the offer for now. Keeping this door open is even more important should the United States choose to increase economic and diplomatic pressure on Iran. The United States and Iran will need a diplomatic off-ramp. Expressed U.S. willingness to meet with Iran also helps keep allies on its side and can help the United States push back against criticism from Iran, China, and Russia that Washington is the obstinate actor.
- **Be flexible on alternatives to the JCPOA.** If either the United States or Iran concludes that the JCPOA no longer serves its interests, that doesn't mean that attempts to find a diplomatic solution have to stop. Given that many of Iran's negotiating demands go beyond the scope of a nuclear deal, the United States may want to lay out what "bigger" nuclear concessions it might seek in exchange for Iran's requests for "bigger" sanction relief and related assurances. And although Iran previously dismissed offers for a smaller interim agreement, its calculus may change again, putting the option for a "smaller" deal back on the table. Reaching a new deal will be incredibly difficult, especially in the immediate aftermath of a collapse of the JCPOA. But the United States will still have an interest in curbing Iran's program, and Iran will still have a desire for sanctions relief and avoiding a military strike, suggesting some type of deal may be possible.
- **Think deliberately about what level of Iranian nuclear latency is acceptable and the implications of that latency.** If you surveyed national security experts a decade or more ago, few would probably believe Iran would be able to enrich to 60 percent without a military response. Yet here we are. That is not to say that the United States or Israel should have carried out a military strike to prevent it, but only to recognize that goalposts can move. As Iran's capabilities improve, it is important for the United States and its allies to think in advance about what level of Iranian capability truly poses an unacceptable threat. This includes progress on Iran's missile program and its **development** of increasingly sophisticated space launch vehicle technologies, some of which can be applied to intercontinental ballistic missiles (ICBMs). Relatedly, Washington must keep an eye on how countries such as Saudi Arabia, the United Arab Emirates, Egypt, and Turkey are thinking about Iran's nuclear progress, their views on the risks of an Iranian nuclear weapon, and their reactions to how the United States deals with Iran's program. Such perceptions will weigh heavily in their own calculations about whether to go nuclear or, like Iran, seek to develop the capability to do so.
- **The option of last resort: a military strike.** The risks of a military strike against Iran's nuclear program are not insignificant: Iran would likely retaliate against the United States or its allies in the region and conflict could escalate to a large-scale war. Iran might also withdraw from the NPT and reconstitute its nuclear program covertly and away from international inspectors. But to be blunt, those risks—some of which the United States can attempt to mitigate—may be worth it to prevent Iran from acquiring a nuclear weapon under certain circumstances. The threshold for what constitutes "an Iranian attempt to acquire a nuclear weapon" should be high. An Iranian dash to a bomb using declared facilities, an attempt by Iran to enrich to 90 percent, a decision by Tehran to throw out all inspectors and remove monitoring equipment, or the discovery of a sufficiently advanced covert enrichment site are all good candidates. It could also be a combination of developments that causes U.S. experts to determine that they are not confident they would know of an Iranian dash or a covert program until it was too late. It

is not, however, the addition of more centrifuges at known sites, an accumulation of multiple bombs' worth of material at lower levels of enrichment, or even possibly a restarted weapons program (provided it was caught early on and was not on the cusp of succeeding). ■

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