

The Half-Life of the JCPOA

by [Simon Henderson](#)

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Brief Analysis

Tehran's claims about its nuclear ambitions still lack credibility and could mean that the JCPOA does not survive beyond the Obama administration.

July 14 will mark one year since the announcement of the Joint Comprehensive Plan of Action (JCPOA), the nuclear agreement with Iran. This article is part of [a series of PolicyWatches](#) assessing how the deal has affected various U.S. interests, to be released in the days leading up to the anniversary.

In late June, an Iranian delegation visited the ITER international nuclear research institute in France. Afterward, Iranian nuclear chief Ali Akbar Salehi mentioned the possibility of his country joining the project, which focuses on nuclear fusion. The other nations involved in ITER welcomed the Islamic Republic's prospective membership -- in fact, this was just the type of Iranian behavior that supporters of last year's nuclear deal hoped to see, namely, Tehran emphasizing peaceful nuclear research and seeking to work with other members of the international community. But for critics of the deal, the ITER visit represents the opposite -- Iran becoming part of the international nuclear community despite continued suspicions and lack of transparency regarding its past nuclear weapons activity, its current nuclear research, its future intentions, and its threatening regional behavior.

Wrapped up in this debate is the extent to which President Obama wants to secure the nuclear deal as part of his legacy -- and the extent to which his successor and Tehran will allow that bit of history to remain intact. Going forward, the JCPOA will face numerous political risks stemming from new revelations about the history leading up to deal, the oft-misunderstood technical factors behind its implementation, and the potential role of third-party

nuclear powers.

REASSESSING THE DEAL'S HISTORY?

As former deputy secretary of state William Burns remarked last week, the JCPOA was "not a perfect outcome but the best of the available outcomes." With the passage of time, more will emerge on the agreement's evolution and the degree of compromise made by each party.

For example, Mark Landler's recently published book *Alter Egos* revealed the full extent of Oman's role as a back channel to Iran in 2009. U.S. officials were told that Tehran was offering to negotiate, which probably tempered Washington's response to the street riots and harsh crackdowns that rocked the Islamic Republic following former president Mahmoud Ahmadinejad's fraudulent reelection that year. At the time, Secretary of State Hillary Clinton and other officials met directly with the Omani intermediary, as did then-senator John Kerry, who made the unofficial but crucial offer of allowing Iran to continue enriching uranium in some capacity.

The talks gathered pace in 2013 after Obama's reelection, Kerry's appointment as secretary of state, and the election of perceived moderate President Hassan Rouhani in Iran. Yet the pre-2013 timeline is at odds with oft-repeated claims about Rouhani's role in the deal -- namely, that his election spurred the crucial breakthrough with Tehran, and that the JCPOA was partly intended to empower him and his political allies. It also raises questions about how much Washington has been prepared to tolerate Iranian misbehavior on nonnuclear matters in order to avoid endangering a signature foreign policy accomplishment for the president. Despite his words to the contrary, there is a general perception that President Obama wanted an agreement so much that he effectively gave Tehran a negotiating advantage.

TECHNICAL LIMITATIONS

Despite years of media coverage on the issue, woeful ignorance persists regarding some of the JCPOA's key technical aspects. For instance, some commentators have made much of the fact that enrichment was halted at the once-secret facility at Fordow, yet Iran is still conducting enrichment activities at Natanz. According to a May 26 International Atomic Energy Agency report, "Iran has continued the enrichment of UF₆ [uranium hexafluoride gas] at FEP [the Fuel Enrichment Plant at Natanz]."

The IAEA also noted that "Throughout the reporting period, Iran has not enriched uranium above 3.67% U-235." This may sound like a low figure, but the science suggests otherwise. Natural uranium contains 0.7% of the isotope U-235 and 99.3% of the isotope U-238, or a ratio of 7:993. To be used as a nuclear explosive, the proportion of U-235 has to be greater than 90%. Yet even at the JCPOA's maximum allowable enrichment level of 3.67%, the resulting isotope ratio is 7:183, meaning that something approaching 75% of the work needed to produce weapons-grade material has already been done (for a fuller technical explanation, see the 2015 Washington Institute report [*Nuclear Iran: A Glossary*](#), coauthored with Olli Heinonen). And while there are limits on the stockpile of this low-enriched uranium Iran can accrue, the country has no real need for any of it; for now, allowing the process to continue at Natanz simply gives Iranian scientists valuable lessons in how to improve their relatively rudimentary centrifuges.

In addition, despite promises of a rigorous inspection regime, Iran has been able to block full investigation of the Parchin site outside Tehran, where it is believed to have conducted tests on the design of an implosion device at some point during the pre-JCPOA years. Such devices are used to compress high-enriched uranium (HEU) or plutonium into critical masses, prompting a nuclear explosion. Even under severe Iranian constraints, the IAEA was able to use soil samples from Parchin to discern the presence of "two particles that appear to be chemically modified particles of natural uranium." On June 16, the *Wall Street Journal* reported that these particles were the first physical evidence -- on top of satellite imagery and documents from defectors -- to support the charge that Iran had pursued the development of a nuclear bomb at Parchin. The particles may have come from material used as a

substitute for HEU in tests of atomic bomb trigger designs.

Moreover, on July 7, UN secretary-general Ban Ki-moon reportedly told the Security Council in a confidential document that the missile tests Iran has conducted since last year "are not consistent with the constructive spirit" of the nuclear deal. (Not to mention the fact that they are grossly out of line with international norms; for example, one missile tested in April had the words "Israel must be wiped out" printed on its side in Hebrew.) And a new German intelligence report revealed that Iran's "illegal proliferation-sensitive procurement activities in Germany...persisted in 2015 at what is, even by international standards, a quantitatively high level. This holds true in particular with regard to items which can be used in the field of nuclear technology...Against this backdrop it is safe to expect that Iran will continue its intensive procurement activities in Germany using clandestine methods to achieve its objectives." Theoretically, Iran has to use a UN-approved procurement channel for all purchases of nuclear and dual-use material and equipment, but the German report suggests it has been trying to evade controls.

THIRD-PARTY PLAYERS

Some analysts fear that Iran may be able to circumvent JCPOA restrictions by sending technicians to North Korea for training in enrichment and weapons design. In addition to its ambitious weapons program involving nuclear tests (most recently in January) and periodic long-range missile launches, Pyongyang uses Pakistani-type P-2 centrifuges that are comparable in design and capability to Iran's IR-2 machines.

Indeed, Pakistanis are potential clandestine partners as well. Although Islamabad is unlikely to risk direct cooperation, Iran's more numerous IR-1 centrifuges originally came from Pakistan through its now-disgraced nuclear scientist A. Q. Khan. Even in the absence of official cooperation, former Pakistani technicians and engineers with centrifuge experience could be tempted by lucrative job offers in Iran's nuclear infrastructure.

Another extreme but plausible scenario should not be dismissed: that of North Korea providing Iran with HEU or plutonium. Pyongyang has both materials, and precedent for such a transfer exists. In the 1980s, China provided Pakistan with enough HEU for two nuclear bombs and the design data to build the devices, greatly boosting Islamabad's capabilities against their mutual rival India.

CONCLUSION

Washington's confidence in the JCPOA's continued success is highly optimistic. Tehran is resentful of continued restrictions on its efforts to expand trade; although these limitations are largely a consequence of nonnuclear sanctions and [Iran's own shortcomings](#) (e.g., in the [banking sector](#)), the regime has nevertheless accused Washington of renegeing on the deal. For their part, U.S. allies are skeptical of Washington's ability to firmly enforce the agreement. In words attributed to a British diplomat at the UN and repeated by numerous others, "The United States is no longer feared by its enemies or respected by its friends."

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