

## **Ensuring the Iran Negotiations Do Not Promote the Spread of Nuclear Weapons**

The negotiations with Iran on its nuclear program have been extended to November 24, 2014 from the original July 20, 2014 deadline. Recently there has been much discussion regarding the merits of various proposals relaxing the requirement that Iran restrict its centrifuge enrichment capacity. It has been suggested that perhaps Iran would only reduce its number of centrifuges by 50% instead of 85% or that when Iran reduces its enrichment capacity, instead of removing the centrifuges entirely, it would just disconnect some of the piping.

However, these nuances are irrelevant to the stated purpose of the negotiations which is to produce an agreement that, “when implemented, will ensure that Iran cannot acquire a nuclear weapon and that Iran’s nuclear program is exclusively peaceful.”<sup>2</sup> The negotiations cannot achieve these goals since a centrifuge enrichment program can never be exclusively peaceful and the whole point of Iran’s nuclear program is to provide the nuclear material needed for nuclear weapons. Since Iran will be allowed to retain some centrifuge enrichment capacity and any agreement will be temporary, after the agreement has lapsed Iran will have an unrestricted centrifuge enrichment program.

Even with the latest softening of the P5+1’s negotiating position, given Iran’s intransigence the negotiations are likely to fail anyway.<sup>3</sup> It is time for the P5+1 to toughen its stance and demand that Iran give up all centrifuge enrichment, dismantle the Arak reactor, and give up its heavy water stocks and dismantle its heavy water production facility. Otherwise the P5+1 will be legitimizing nuclear facilities in Iran and many other countries that will make it easy for these countries to produce the nuclear material for nuclear weapons whenever they desire them.

There are two paths for providing the nuclear material for nuclear weapons. One can enrich natural uranium to produce highly enriched uranium (HEU), or one can use the natural uranium to operate a nuclear reactor (which must be moderated by either heavy water or graphite) to produce plutonium.

In 2003 it was revealed that Iran was secretly pursuing both of these paths. Iran had acquired centrifuge technology from Pakistan. Iran had no peaceful use for the enriched uranium that these centrifuges would produce, yet Iran had conducted secret small-scale enrichment in violation of IAEA (International Atomic Energy Agency) safeguards. At the same time it had started construction of a heavy water reactor at Arak which it claimed would be a research reactor. However, natural uranium fueled heavy water reactors make rather poor research

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<sup>2</sup> “Written Statement, Wendy Sherman, Under Secretary of State for Political Affairs, U.S. Department of State, Senate Committee on Foreign Relations, “Status of Negotiations with Iran,” July 29, 2014.”

<sup>3</sup> The P5+1 are China, France, Germany, the UK and the U.S.

reactors but excellent plutonium production reactors.<sup>4</sup> It was obvious that Iran had a nuclear weapons program long before this fact was publicly confirmed by U.S. intelligence. Yet Iran continues to deny that it ever had a nuclear weapon program and is stalling the IAEA investigation into this matter.

At the end of 2003, with a victorious American army in next-door Iraq, Iran shut down its nuclear weapons program and its centrifuge enrichment program. However, in 2006, with the U.S. bogged down in an insurgency in Iraq (which Iran was helping to foment) Iran restarted its centrifuge enrichment program. Iran had no more peaceful use for the enriched uranium that would result from such a program in 2006 than it did in 2003. In 2007 Iran prevented the IAEA from enforcing the enhanced safeguards that had been in force since 2003. The IAEA pointed out that Iran was not permitted to unilaterally suspend parts of its safeguards but Iran ignored the IAEA's protests as well as a number of UN Security Council resolutions calling on Iran to suspend its uranium enrichment. In 2009 it was revealed that Iran was building a secret uranium enrichment facility at Fordow in violation of IAEA safeguards. Though U.S. intelligence has been reluctant to admit it, Iran clearly has a nuclear weapons program, a view that the British have held for some time.<sup>5</sup>

Iran's obvious progress towards nuclear weapons prompted the P5+1 to undertake negotiations with Iran to try to stop this program. It would be easy for the negotiations to achieve this goal if Iran were truly not interested in developing nuclear weapons. Iran would need to cease its centrifuge enrichment program, ensure that the reactor at Arak never operates and eliminate its heavy water stocks and its heavy water production facility. Note that while these restrictions would prevent Iran from developing the nuclear material (HEU and plutonium) needed for nuclear weapons, it would place no special burden on Iran's peaceful use of nuclear energy. Iran would still be allowed to have nuclear power reactors including its already operating reactor at Bushehr and be able to have an adequate supply of medical isotopes produced by Iran's current research reactor, the TRR.

However, the P5+1 have never proposed these restrictions on Iran's nuclear program, not even as an opening negotiating position. Instead the P5+1 have granted Iran an unrestricted right to enrichment, only asking for Iran to temporarily reduce its centrifuge enrichment capacity. The P5+1 is willing to allow the Arak reactor to be completed, only asking for changes in the fuel enrichment and power levels that will reduce the amount of plutonium produced by the reactor. These changes may easily be reversible. The P5+1 have apparently made no request that Iran dismantle its heavy water production facility or give up its stocks of heavy water. Thus at best, the negotiations with Iran will only temporarily prevent Iran from acquiring a nuclear weapon at the expense of ensuring its capability to produce such weapons in the long-term.

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<sup>4</sup> All five such reactors that are currently in operation outside the P5 are providing plutonium for nuclear weapon programs. These five reactors are in Israel, Pakistan (3) and India. The P5 are China, France, Russia, the UK and the U.S.

<sup>5</sup> The British view was reaffirmed on September 23, 2014 by British Prime Minister David Cameron in an interview with NBC's Brian Williams. Cameron said, "We think that they [the Iranians] are wrong to have this nuclear weapons program." <http://www.nbcnews.com/storyline/isis-terror/britains-david-cameron-isis-these-people-want-kill-us-n209706>

Iran's nuclear program is obviously useful for developing a nuclear weapon, yet Iran has continued to claim that all of its nuclear activities are intended for peaceful use only. However these claims have been rather unconvincing since for many years Iran did not even try to explain how the enriched uranium it was producing could be used peacefully in its nuclear program. When more recently it has tried, its explanations have not been very plausible.

Though the 3.5% enriched uranium that Iran has been stockpiling for many years could be used to fuel a nuclear power reactor, Iran has no reactor needing this fuel since its sole nuclear power reactor is under contract until at least 2021 to receive its fuel from Russia. However, Iran has invented an excuse not to renew the Russian contract, expressing concern about being dependent on foreign sources for its nuclear fuel. This fact combined with Iran's claim that it plans to build additional nuclear power reactors, has led Iranian officials to say that Iran will need to expand its centrifuge enrichment capacity by at least ten fold, not greatly reduce it as has been called for by the P5+1 in the negotiations.

In fact most countries with nuclear power reactors (including the U.S.) rely on foreign sources for some aspect of their nuclear fuel. Even if Iran could produce enough enriched uranium to run its nuclear power reactor, this would not make Iran independent of foreign sources for its nuclear fuel since Iran cannot carry out the technically demanding steps needed to convert the enriched uranium into nuclear fuel elements suitable for a nuclear power reactor. Surprisingly some analysts in the U.S. take Iran's implausible explanations seriously and have suggested that the technology to manufacture nuclear fuel should be given to Iran. However, even if this were to be done, it would not end Iran's dependence on foreign sources for its nuclear fuel. As Olli Heinonen of the Harvard Belfer Center has pointed out, Iran does not have enough indigenous natural uranium resources to fuel an expanded nuclear power program and Iran would have to import the uranium ore if nothing else.

Much has been made of the fact that under the terms of the Joint Plan of Action (JPA), Iran has eliminated its stockpile of 20% enriched uranium in the form of hexafluoride. Unfortunately, this accomplishment has had little effect on the amount of time it would take Iran to produce the HEU needed for a nuclear weapon. Currently Iran could produce sufficient HEU for a nuclear weapon in just two months. Though the JPA has been characterized as a "freeze" of Iran's nuclear program, Iran's stockpile of 3.5% enriched uranium continues to grow and with it the number of nuclear weapons that Iran can produce from this stockpile.

Accurately estimating the size of Iran's current 3.5% stockpile has been complicated by two issues. First, the IAEA has erred in reporting the amount of low enriched uranium that Iran has produced by downblending some of its 20% enriched uranium stockpile. Iran has blended down 20% enriched uranium to less than 5%, which would produce at least a four to one increase in the amount of enriched uranium, yet the IAEA has reported that the downblending of 108.4 kilograms of uranium hexafluoride produced only 115.6 kilograms of uranium hexafluoride. Correcting this error increases Iran's stockpile of low enriched uranium by at least four percent and more likely seven percent.<sup>6</sup>

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<sup>6</sup> The seven percent figure assumes that Iran blends down 20% enriched uranium to 3.5% enriched uranium using natural uranium.

Second, converting some of Iran's low enriched uranium from a hexafluoride form to an oxide form does not make it unusable for the production of HEU for nuclear weapons, despite claims to the contrary. Currently Iran has started converting about 15% of its under 5% enriched uranium stockpile to an oxide form but it would be a fairly simple matter for Iran to use its existing facilities for producing uranium hexafluoride from uranium ore to convert this material back into hexafluoride form. Iran's current less than 5% enriched uranium stockpile could produce about 71 kilograms of HEU, which is sufficient for three or four nuclear weapons. The amount of HEU that Iran will be able to produce will grow by about 2 kilograms per month during the four month extension of the negotiations.

Secretary of State John Kerry and other analysts have argued that even if Iran can produce the HEU for a nuclear weapon in just two months, it would take Iran much longer, perhaps as long as one year, to produce a deliverable nuclear weapon. Actually it would take Iran only days or weeks to produce a finished nuclear weapon after it had produced the HEU needed for a weapon. Based on U.S. experience in World War II, the HEU hexafluoride could be converted into metal weapon components in about nine days. It might well take Iran several months to produce the non-nuclear explosive components needed for a nuclear weapon. However, the development of these non-nuclear components does not require any HEU and they could be produced during the time that the HEU was being produced. The HEU metal and the non-nuclear components could be mated in a matter of hours.

Part of Secretary Kerry's argument is that it would take much longer for Iran to develop a nuclear weapon that could be delivered by a ballistic missile. However, a Russian nuclear weapon designer has already provided Iran with a nuclear weapon design that can be fitted onto Iranian ballistic missiles. Though as far as is known, Iran has not yet flight tested a ballistic missile with a simulated nuclear warhead, Pakistan certainly has. Since both Iran and Pakistan use the same type of North Korean ballistic missile, Pakistan could easily have provided the necessary technical information to Iran (or for that matter to North Korea as well). At any rate, Iran does not even need to deliver its nuclear weapons by ballistic missile but could use a truck or ship instead.

It is true that without the current negotiations the current situation would be even worse. Iran would be able to produce the HEU for a nuclear weapon in less than two months and Iran's stockpile of enriched uranium would be large enough to allow Iran to produce even more than the three to four nuclear weapons that it already is able to. But this temporary slowdown of Iran's nuclear program has come at a very heavy price. By granting Iran the right to enrich, the negotiations have ensured that in the long-run Iran will have easy access to the nuclear material for nuclear weapons through its centrifuge enrichment program.

Though Wendy Sherman has said that a goal of the negotiations is to ensure "that Iran's nuclear program is exclusively peaceful," this is impossible for any nuclear program that possesses large-scale centrifuge enrichment. As I calculated well before the negotiations with Iran began, a centrifuge enrichment facility large enough to fuel just one large nuclear power reactor (such as

Iran already has at Bushehr) can produce the HEU for a nuclear weapon in just two weeks.<sup>7</sup> Yet in the long-term the current negotiations have already granted Iran an unrestricted centrifuge enrichment program.

What is worse, if Iran, which has violated its International Atomic Energy Agency (IAEA) safeguards by conducting clandestine centrifuge enrichment and defied multiple U.N. Security Council resolutions demanding that it halt centrifuge enrichment, is allowed to retain this capability, on what basis can any country that has abided by its IAEA safeguard obligations be denied centrifuge enrichment? The current negotiations with Iran are setting the stage for many countries to acquire centrifuge enrichment, making it very easy for them to produce the HEU for nuclear weapons whenever they desire them.

An illustration of this problem can already be found in Brazil which for many years has had a centrifuge enrichment program. This program was started by Brazil's navy but now is supposed to have the civilian purpose of fueling its two nuclear power reactors. However, Brazil has refused to allow IAEA inspectors to see the actual centrifuge configuration and has also refused to allow the IAEA to enforce the enhanced safeguards (the Additional Protocol) that 124 other countries have ratified. The plant is well behind schedule and can only provide 5% of the enriched uranium needed by Brazil's two power reactors.<sup>8</sup> Even so this small plant has more enrichment capacity than Iran's currently operating centrifuges, meaning that Brazil can easily produce the HEU for a nuclear weapon whenever it decides to do so. This fact has not been lost on rival Argentina, which recently revived its moribund uranium enrichment program in response.

Undersecretary of State Wendy Sherman has claimed that the goal of the negotiations is to "ensure that Iran cannot acquire a nuclear weapon," but it is clear that the real goal is to only *temporarily* ensure this. In the long-term the negotiations will enable Iran to be able to produce the HEU or plutonium for nuclear weapons whenever it desires to and will inflict enduring damage on broader U.S. nonproliferation efforts by legitimatizing centrifuge enrichment or heavy water plutonium production reactors for any country.

Sherman has indicated that the length of time that "temporarily" should last is at least ten years. This attempt to "kick the can down the road" is a traditional governmental approach to many problems. It was the basis of the 1994 Agreed Framework with North Korea which pushed North Korean nuclear weapons off for twelve years. At the time the Agreed Framework seemed like a great idea; in 2014 after three North Korean nuclear tests, it seems less so. The problem with this approach is that these supposed far-off dates inexorably become the present.

It is not too late for the P5+1 to demand that Iran give up all centrifuge enrichment, dismantle the Arak reactor, and give up its heavy water stocks and dismantle its heavy water production facility. In the past, these demands have been considered to be showstoppers in the negotiations,

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<sup>7</sup> See Appendix 2, Gregory S. Jones, "Facing the Reality of Iran as a De Facto Nuclear State: Centrifuge Enrichment and the IAEA February 24, 2012 Safeguards Update," March 22, 2012 <http://www.npolicy.org/article.php?aid=1166&tid=4>

<sup>8</sup> As of 2012, the latest year for which information is available. See: "Nuclear Power in Brazil," World Nuclear Association, (Updated September 2014) <http://www.world-nuclear.org/info/Country-Profiles/Countries-A-F/Brazil/>

but it is now clear that the supposedly more moderate demand that Iran reduce its centrifuge enrichment is just as much a showstopper. With Iran calling Western demands “illogical” and suggesting that it needs to expand its centrifuge enrichment capacity at least ten fold, it seems clear that the negotiations are likely to fail anyway. At least by refusing to legitimize centrifuge enrichment and heavy water plutonium production reactors in Iran and many other countries, the U.S. will be doing no enduring harm to the current nonproliferation system, which is just what the current negotiations are set to do.