

IAEA November 16, 2009 Update Implications for Iran's Ability to Produce Fissile Material for Nuclear Weapons

In two prior reports this author has outlined how Iran's growing centrifuge enrichment program will be able to provide it with the ability to produce fissile material for nuclear weapons.¹ On November 16, 2009 the IAEA released a further safeguards update.² This update shows that Iran remains on a trajectory to attain the capability to produce a weapon's worth (20 kilograms) of highly enriched uranium (HEU) by batch recycling at its existing enrichment facility at Natanz sometime in 2010. As indicated in my prior reports this will require Iran to have about 10,000 operating centrifuges and to have a low enriched uranium stockpile of around 1,900 kilograms.

Further the IAEA has indicated that Iran's continuing insistence that it has unilaterally abrogated its obligations under Code 3.1 of the Subsidiary Arrangements General Part of its IAEA safeguards (which requires Iran to provide the IAEA with "early" design information about any nuclear facility it plans to construct) means that the IAEA is not "in a position to provide credible assurance about the absence of undeclared nuclear material and activities in Iran". What this means is that Iran could be producing HEU at this moment at a clandestine facility unknown to the IAEA. The IAEA has termed Iran's failure to provide design information about the centrifuge enrichment facility it was clandestinely constructing near Qom (the Fordow Fuel Enrichment Plant) as being "inconsistent with its obligations" regarding its IAEA safeguards agreements. This is the IAEA's polite way of saying that Iran has yet again violated its IAEA safeguards.

The basic unit of Iran's centrifuge enrichment effort is a cascade which consists of 164 centrifuges. These cascades are organized into "Units" of 18 cascades (2,952 centrifuges). The latest IAEA update indicates that at its enrichment facility at Natanz Iran has installed all of the cascades in Units A24 and A26 as well as 17 cascades in Unit A28. The final cascade in Unit A28 is in the process of being installed. As a result Iran has currently installed 8,692 centrifuges and will very soon have 8,856 centrifuges installed. Work is proceeding on the construction of Units A25 and A27 which when completed will give Iran a total of 14,760 centrifuges (90 cascades). In my prior work I predicted that Iran would have 8,856 centrifuges installed by the end of 2009 and 14,760 centrifuges installed sometime in 2010. The IAEA update continues to be consistent with these predictions. Note that Iran has submitted to the IAEA plans for three more Units (A21, A22, and A23) which will contain 8,856 additional centrifuges.

¹ *Iran's Centrifuge Enrichment Program as a Source of Fissile Material for Nuclear Weapons: An Update*, August 17, 2009, appendix added August 31, 2009, <http://www.bipartisanpolicy.org/sites/default/files/Iran%20Enrichment%20Update%20%282%29.pdf> and *Iran's Centrifuge Enrichment Program as a Source of Fissile Material for Nuclear Weapons*, April 8, 2008. <http://www.npec-web.org/Essays/20081017-Jones-IranEnrichment.pdf>

² *Implementation of the NPT Safeguards Agreement and relevant provisions of Security Council resolutions 1737 (2006), 1747 (2007), 1803 (2008) and 1835 (2008) in the Islamic Republic of Iran*, GOV/2009/74, November 16, 2009.

The IAEA also reports on its inspection of the formerly clandestine enrichment facility being constructed near Qom. The IAEA found that the facility will have 16 cascades which if these are the same as the cascades at the facility at Natanz, will result in a total of 2,624 centrifuges (the IAEA says “approximately 3,000”). Iran has stated that the facility is planned to be operational in 2011. No centrifuges have yet been installed but the IAEA has described the facility as being “at an advanced stage of construction”. From the IAEA’s description of what has already been installed at the Qom plant, it would seem that centrifuge installation could begin at any time and at least part of the facility could start operation in 2010. Also of note, though Iran has stated that it plans to use the same centrifuges at the Qom facility as it uses at Natanz, it also stated that it could reconfigure the facility to use more advanced centrifuges if it decided to do so at a later time.

The IAEA update states that on November 2, 2009 Iran had 3,936 centrifuges (24 cascades) actually enriching uranium. Since in its previous update the IAEA stated that Iran was using 4,592 centrifuges (28 cascades) to enrich uranium, it would seem that Iran has scaled back its enrichment effort. However, an examination of the amount of enriched uranium product that Iran produced in this period shows that such a conclusion is unwarranted. In its most recent update, the IAEA has indicated that as of October 30, 2009, Iran had an enriched uranium stockpile of 1,192 kilograms (contained in 1,763 kilograms of uranium hexafluoride). This is an increase of 173 kilograms since July 31, 2009 or a production rate of 58 kilograms of enriched uranium product per month. This is the monthly production rate of 4,592 centrifuges and indicates that over this three month period (since July 31, 2009) that this is the number of centrifuges that were in operation producing enriched uranium and not the 3,936 that the IAEA found on November 2, 2009. It is possible that Iran’s future enriched uranium production will be at this lower level (though this would still be a production rate of about 49 kilograms per month) or it could mean that this slowdown was a temporary event that coincidentally (or not so coincidentally) occurred during the IAEA inspection.

Soon it will be the end of 2009. By this time Iran will have about 9,000 installed centrifuges and a low enriched uranium stockpile of around 1,300 kilograms. 2010 is going to be the year of decision with regard to Iran’s centrifuge enrichment program. On its present course, sometime during 2010 Iran is going to gain the ability to be able to produce a weapon’s worth of highly enriched uranium (via by batch recycling at its enrichment facilities). The technical characteristics of the centrifuge enrichment process are such that centrifuge enrichment facilities are inherently unsafeguardable (Iran can abrogate safeguards and produce the HEU faster than the IAEA can raise the alarm and the West take counteraction). Unless strong action is taken very soon to bring Iran into compliance with UN Security Council resolutions 1737, 1747, 1803 and 1835, which call on Iran to suspend without further delay “all enrichment-related and reprocessing activities”, Iran will have a latent nuclear weapons capability and the West will need to start planning for Iran’s new status as a defacto nuclear weapons state.