UNITED AGAINST NUCLEAR IRAN

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Technical Talking Points

Number of Centrifuges

As of May 2010, Iran was in possession of 8,528 centrifuges at the Natanz Fuel Enrichment Plant (up from 7,052 in June 2009[1]). The IAEA report stated that 3,936 of these centrifuges are in operation. Additional centrifuges are located in the advanced Pilot Fuel Enrichment Plant.[2]

How much enriched uranium can Iran produce per year?

The average monthly rate of low-enriched uranium (LEU) production has now increased to 120 kg per month in May 2010, giving Iran the capacity to produce nearly 1,500 kgs of low-enriched uranium (LEU) in a given year.[3] Approximately 1000 kgs of LEU is needed to construct a nuclear device.[4]

Amount of enriched uranium currently in possession

By May 2010, Iran had produced 2,427 kilograms of LEU hexafluoride (UF_6).[5] The IAEA report indicated that Iran now possesses enough uranium to produce two nuclear weapons.[6] In a June 2010 interview, CIA Director Leon Panetta confirmed this assessment.[7] In a breakout scenario, Iran's facilities could potentially convert low-enriched uranium to weapons grade within three to six months.[8]

At the Pilot Fuel Enrichment Plant, which is part of the Natanz facility, Iran has begun to further enrich its LEU stockpile to 20 percent purity, bringing the regime closer to weapons-grade level material. Between February and April 7, 2010, Iran produced 5.7 kg of this 20 percent enriched uranium.[9] On June 23, 2010, Iran announced it had now produced 17 kilograms of such enriched uranium, triple the amount from April. The head of Iran's atomic agency claimed the regime is capable of producing 5 kg of the higher-enriched uranium a month.[10]

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[1] David Albright and Jacqueline Shire, "ISIS Analysis of the IAEA Iran Report from June 5, 2009." *Institute for Science and International Security*. 5 June 2009.

[2] "Implementation of the NPT Safeguards Agreement in the Islamic Republic of Iran." International Atomic Energy Agency. 31 May 2010.

[3] David Albright and Jacqueline Shire, "IAEA Iran Report: Enrichment Increases Slightly; Lack of Adequate Safeguards." *Institute for Science and International Security*. 31 May 2010.

[4] David Albright and Jacqueline Shire, "IAEA Report on Iran." *Institute for Science and International Security*. 19 February 2009.

[5] "Implementation of the NPT Safeguards Agreement in the Islamic Republic of Iran." International Atomic Energy Agency. 31 May 2010.

[6] David E. Sanger and William J. Broad. "U.N. Says Iran Has Fuel for 2 Nuclear Weapons," *The New York Times*. 1 June 2010.

[7] Anne Flaherty, "CIA's Panetta: Iran has enough uranium for 2 bombs," Associated Press. 27 June 2010.

[8] David Albright, Paul Brannan, and Jacqueline Shire, "ISIS Analysis of August 2009 IAEA Iran Report." *Institute for Science and International Security*. 28 August 2009.

[9] David Albright and Jacqueline Shire, "IAEA Iran Report: Enrichment Increases Slightly; Lack of Adequate Safeguards." *Institute for Science and International Security*. 31 May 2010.

[10] Ali Sheikholeslami, "Iran Says It Triples Stockpile of 20 Percent-Enriched Uranium." *Bloomberg News*. 23 June 2010.

What are Iran's main nuclear facilities?

Bushehr: The power plant at Bushehr was originally built with the help of Germany's Kraftwerk Union (a subsidiary of Siemens AG) in the 1970s. Work resumed in the late 1990s under Russia's Atomstroyexport. The US opposed the construction of Bushehr in 1998 for the following reasons: "First was that weapons grade plutonium could be extracted from the reactor allowing the Iranians to construct nuclear weapons. Secondly, the US was concerned that the knowledge gained by Iranian scientists working at Bushehr could further Iran's nuclear weapons program."[11]

Arak: The heavy water production facility at Arak was revealed to the public in 2002 by the National Council of Resistance in Iran, an opposition group against the regime. As of fall 2008, satellite imagery showed that significant progress had been made on the construction of the facility. The reactor at Arak is called the IR-40. Construction may be completed by 2011, with the facility being fully operational in 2013. Arak would produce approximately 9 kg of plutonium a year (enough for two nuclear bombs annually).[12] Heavy-water reactors use natural uranium as fuel in order to produce plutonium. Iran can therefore acquire natural uranium for non-weapons purposes (research, power production, etc) and use it to produce weapons-grade ("fissile" or "fissionable") material. Even if the United Nations and International Atomic Energy Agency provided Iran with uranium for civil purposes under the provisions of the Non-Proliferation Treaty (NPT), Iran would be able to use the low-enriched uranium to create fissile plutonium for a nuclear weapon. Only several kilograms of weapons-grade plutonium is necessary for an implosion bomb, making plutonium extremely dangerous in the hands of rogue nations and terrorists.

Natanz: The enrichment facility at Natanz was revealed to the public in 2002 by the National Council of Resistance in Iran. Natanz enables Iran to produce large amounts of low-enriched uranium that can be enriched to weapons-grade within a short period of time. The facility has two components: a fuel enrichment plant (FEP) with two cascade halls, and a pilot fuel enrichment plant (PFEP) with one cascade hall comprised of six cascades. The PFEP is also broken into two parts, with one part designed to enrich LEU up to 20% U-235, and the other designated as an R&D area.

Esfahan: Esfahan is believed to be the center of Iran's nuclear weapons program and the country's largest nuclear research center. It is believed to have housed missile and chemical weapons programs throughout the 1980s and 1990s, receiving assistance from North Korea and China. Esfahan has a uranium conversion facility (it received technology from China in the 1990s)—for conversion to gas prior to enrichment--and a Fuel Fabrication Laboratory (to produce fuel for a nuclear reactor), among others.[13]

Qom: In September 2009, it was revealed during a meting of the G-20 that Iran was constructing the Fordow Fuel Enrichment Plant (FFEP) near Qom. In violation of the Nuclear Non Proliferation Treaty Safeguard Agreement, Iran did not initially declare the facility to the IAEA. Iran has claimed that the plant is being constructed as "a contingency enrichment plant, so that enrichment activities shall not be suspended in the case of any military attack."[14] This facility is being built to contain sixteen cascades with

[11] GlobalSecurity.org, "Bushehr."
[12] David Albright and Paul Brannan, "Arak Heavy Water Reactor Construction Progressing." *Institute for Science and International Security*. 13 November 2008.
[13] GlobalSecurity.org, "Esfahan Nuclear Technology Center."
[14] Armscontrol.org, "IAEA Rebukes Iran over Secret Facility"

approximately 3,000 of Iran's "third generation" centrifuges, which are built to spin at speeds far greater than its other centrifuges. There is extensive evidence alleging that design and construction of FFEP began as early as 2006, but Iran has continually refused to answer any questions about the facility.[15]

Tehran: The Tehran Research Reactor is a 5 megawatt-thermal light water research center that the United States supplied to Iran in 1967. In 1987 the Atomic Energy Organization of Iran (AEOI) paid Argentina to convert the reactor's fuel from 93% enriched uranium to 20% enriched uranium. The reactor has been operating with the LEU fuel since 1993.[16]

What kind of missiles does Iran possess?
Iran's missile program mainly consists of the Shahab-1, Shahab-2, Shahab-3, Shahab-4 and Ghadr-1 Kavoshgar (Shahab-3M) missiles. The Shahab variants are believed to have some of the same parts as North Korean SCUD missiles—missile-collusion between the two countries is highly apparent.[17] Plans for several other Shahab variants are rumored to be in existence. Reports suggest that Iran may also have short-range ballistic missiles like the Fateh A-110 and the Chinese-imported CSS-8 (Tondar-69).

How many missiles does Iran have?
Iran is believed to possess 50-300 Shahab-1 missiles, 50-150 Shahab-2 missiles, 25-100 Shahab-3, and 16-35 Shahab-4 missiles.[18] Its official inventory is unknown.

What are the ranges of these missiles?
The Shahab-1, Shahab-2, Shahab-3, and Shahab-4 missiles have ranges of 300 km, 500 km, 1,300 km, and 3218-4000 km, respectively. [19] The other Shahab variants may have ranges of 1,500-2,500 km, making them capable of striking targets in the Middle East, Turkey, and southeastern Europe. The Shahab-3 and its higher-range variants are believed to be adequate delivery methods for nuclear warheads.[20]

[15] "Implementation of the NPT Safeguards Agreement in the Islamic Republic of Iran." International Atomic Energy Agency, May 2010. Available online at http://www.isisnucleariran.org/assets/pdf/IAEA_Report_Iran_31May2010.pdf
[16] ISISNuclearIran.org, "Nuclear Sites: Tehran Nuclear Research Center."
[17] "Iran's Nuclear and Missile Potential: A Joint Threat Assessment by US and Russian Technical Experts." *East West Institute*. May 2009.
[18] GlobalSecurity.org. "Iran Missiles."
[19] Ibid.
[20] Andrew Feickert, "Iran's Ballistic Missile Capabilities." *Congressional Research Service*. 23 August 2004.