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CRS Report for Congress

Iranian Nuclear Sites

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Summary

This report describes Iran's known nuclear sites listed in official International Atomic Energy Agency (IAEA) reports and includes a map with the location of the nuclear facilities. For further information and analysis of Iran's nuclear programs, see CRS Report RS21592, *Iran's Nuclear Program: Recent Developments*, by Sharon Squassoni; and CRS Report RL32048, *Iran: U.S. Concerns and Policy Responses*, by Kenneth Katzman. This report will be updated as warranted.

Background

Beginning in 2003, the International Atomic Energy Agency (IAEA) intensified nuclear inspections after Iran confirmed the existence of several undeclared nuclear sites. In 2004, the IAEA reported extensively on these sites. This report describes the key sites identified by the IAEA.

IAEA and Nuclear Sites in Focus. The IAEA, created in 1957, is a Vienna-based, UN-affiliated organization with 137 member countries. The two main missions and principles of the IAEA are[1]

- to facilitate the use of nuclear energy for peaceful purposes; and
- to implement a system of audits and on-site inspections (collectively known as safeguards) to verify that nuclear facilities and materials are not being diverted for nuclear explosions.

According to published reports, Iran has a long list of known and suspected nuclear facilities. Many analysts raised serious questions regarding the character of Iran's nuclear

[1] Joseph Cirincione, Jon B. Wolfsthal, and Miriam Tajkumar, *Deadly Arsenals: Nuclear, Biological and Chemical Threats*, second edition (Washington, DC: Carnegie Endowment for International Peace, 2005).

research, development, and production facilities. Tehran has a large and well-dispersed mix of state industries and military facilities that it can use to hide its activities or to shelter and disperse them.[2]

According to published reports by the IAEA, the following nuclear sites have been declared or are relevant to the implementation of IAEA safeguards:[3]

Tehran Nuclear Research Center. Since 1968, the Tehran Nuclear Research Center, located in suburban Amirabad, has included a research reactor with a nominal capacity of 5 megawatts, provided by the United States under IAEA safeguards.

Tehran. The research program of the Tehran-based Center for Theoretical Physics and Mathematics of the Atomic Energy Organization of Iran (AEOI) includes theoretical physics, and other research and development related to high energy physics, including particle physics, mathematical physics, astrophysics, theoretical nuclear physics, statistical mechanics, theoretical plasma physics, and mathematics.

Bushehr. The focus of a considerable amount of controversy in the United States, the nuclear facility at Bushehr is being built under an agreement between the Russian and Iranian governments for an estimated $800 million.

Esfahan [Isfahan] Nuclear Technology Center. Esfahan [Isfahan] is believed to be the primary location of the Iranian nuclear weapons program. The Nuclear Technology/Research Center in Esfahan is Iran's largest nuclear research center and is said to employ as many as 3,000 scientists. Iran signed an agreement with France in 1975 to build a nuclear research center in Esfahan and provide training for personnel to operate the Bushehr reactor located at the University of Esfahan. It is the location of Iran's nuclear conversion effort.

Natanz. During a press conference on August 22, 2006, by the representative office of the National Council of Resistance of Iran held in Washington, DC, the existence of a secret nuclear facility at Natanz was revealed. Natanz is located between Esfahan and Kashan in central Iran. The facility is reportedly 100 miles north of Esfahan, in old Kashan-Natanz, near a village called Deh-Zireh, about 25 miles southeast of Kashan.

Karaj/Karai/Hastgerd. The Nuclear Research Center for Agriculture and Medicine in Karaj, 100 miles northwest of Tehran, includes a recently constructed building which houses a dosimetry laboratory and an agricultural radio chemistry laboratory.

Lashkar Ab'ad. Lashkar Aba'ad is a pilot laser enrichment plant established in 2000 and dismantled in 2003.

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[2] Anthony H. Cordesman, *Iran's Developing Military Capabilities* (Washington, DC: Center for Strategic and International Studies Press, 2005).

[3] Global Security at [http://www.globalsecurity.org/wmd/world/iran/nuke-fac.htm], accessed Feb. 12, 2007.

Arak. During a press conference by the representative office of the National Council of Resistance of Iran held in Washington, DC, on August 14, 2002, the existence of a secret nuclear facility at Arak was revealed. It is located at the Qatran Workshop near the Qara-Chai river in the Khondaub/Khondab region in central Iran, 150 miles south of Tehran. According to the National Council of Resistance of Iran, the Mesbah Energy Company, a front organization, has been used to prevent unwanted disclosures. The headquarters of the Mesbah Energy Company is located in Tehran.

On November 18, 2006, Reza Aqazadeh, Director of the Atomic Energy Organization of Iran (AEOI), said that Arak's 40-megawatt heavy water research reactor will replace Tehran's 5-megawatt reactor, which is over 30 years old.[4]

Anarak. There are reportedly rich occurrences of uranium ore near Anarak, not far from Yazd. The famous Talmessi (or Talmesi) Mine near Anarak produced the first specimen of Seelite in 1955.

Table 1. Relevant Nuclear Locations in Iran Designated by the IAEA

Location	Facility/Reactor as of November 2004	Status
Tehran nuclear research center	Tehran Research Reactor (TRR)	Operating
Tehran	Kalaye Electric Company	Dismantled pilot enrichment facility
Bushehr	Bushehr Nuclear Power Plant (BNPP)	Under construction
Esfahan nuclear technology center	Miniature Neutron Source Reactor (MNSR)	Operating
Natanz	Pilot Fuel Enrichment Plant (PFEP)	Operating (PFEP)
Karaj	Radioactive Waste Storage	Partially operating
Lashkar Ab'ad	Pilot Uranium Laser Enrichment Plant	Dismantled
Arak	Iran Nuclear Research Reactor IR-40	In detailed design phase
Anarak	Waste Storage Site	Waste to be transferred to Jabr Hayan Laboratories (JHL)

Source: International Atomic Energy Agency, *Implementation of the NPT Safeguards Agreement in the Islamic Republic of Iran*, November 15, 2004.

[4] "Arak nuclear reactor to replace Tehran reactor-Iranian agency," *BBC Monitoring Middle East*, Nov. 19, 2006.

Recent Developments. On December 23, 2006, the UN Security Council unanimously adopted resolution 1737 against Iran. The resolution, bans trading with Iran in items that could give to the country's nuclear and ballistic missile programs for its refusal to suspend uranium enrichment activities.[5] It also imposes an asset freeze on key companies and people in the country's nuclear and missile programs named on a U.N. list.

On January 28, 2007, on his one-day trip to Tehran, the Secretary of Russia's Security Chief, Igor Ivanov, vowed to launch Iran's nuclear plant on schedule in September after talks in Tehran with leaders of the Islamic republic. Ivanov said, "Russia is determined and serious in fulfilling its obligation to finish Bushehr plant on the scheduled date."[6] In September 2006, Russia and Iran signed an agreement setting September 2007 as the deadline for the launch of the Russian-built Bushehr nuclear power station which lies on the Gulf coast in southwestern Iran.

Geographically, the Iranian nuclear sites are located in a corridor running south from the Tehran area to the Persian Gulf. For further details on the actual locations of these sites see **Figure 1** below.

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[5] Security Council Imposes Sanction on Iran for Failure to Halt Uranium Enrichment, Unanimously Adopting Resolution 1737 (2006), available at [http://www.un.org/News/Press/docs/2006/sc8928.doc.htm], accessed Feb. 12, 2007.

[6] *Agence France-Presse*, Russia vows to keep schedule for Iran nuclear plant, Jan. 28, 2007.

Figure 1. Known Iranian Nuclear Sites.

Source: International Atomic Energy Agency. Nuclear facility site locations are approximate. Map prepared by Congressional Cartography Program, 2006.

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