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# Iran's Energy Security Dilemma

Despite the well-documented concerns of multiple states, there is another side to Iran's nuclear program. According to Samir Tata, Tehran hopes that nuclear power will offset the rising domestic consumption of oil and gas and safeguard much-needed export revenues.

By Samir Tata for ISN

The United States has established beyond any doubt that Iran is facing a looming energy crisis that threatens to transform the country into a net importer rather than a net exporter of oil. The consequences of this would be catastrophic: Iran would suffer severe economic stagnation and become strategically irrelevant. Yet Tehran's attempts to address this problem – developing a domestic network of nuclear power plants fueled by indigenously enriched uranium as a means of meeting Iran's growing need for electricity – has also set alarm bells off in Washington.

It's well-established that the United States suspects that the Iranian nuclear program is really intended to develop nuclear weapons. A nuclear-armed Iran would, in turn, threaten its position as the only global superpower, as well as its control over access to Persian Gulf oil and gas resources. Not surprisingly then, Iran's energy security dilemma has played second fiddle to its controversial nuclear program.

## Iran's Oil Problem

The specter of energy insecurity stalks Tehran. If Iran's [oil production](#) remains stagnant at its current level of 3.5 million barrels per day (bbl/d) while domestic oil consumption grows at a modest annual rate of 5%, then it will cease to be a net oil exporter within the next 15 years. The permanent loss of oil revenues – the engine for Iran's economic growth and development – would be devastating.

According to the [International Monetary Fund](#) (IMF), revenues from oil exports fund approximately 66% of the Iranian government budget. US sanctions in response to Tehran's nuclear program deliberately target the country's energy sector precisely because oil exports constitute the jugular vein of Iran's economy. As the Energy Information Administration (EIA) [reports](#), Iran recently experienced an unprecedented drop in oil exports as a result of tighter sanctions. But that's not the only problem facing Iran's energy sector. The EIA notes that Iran's declining oil production is also structural in nature. It believes that the country faces the continued depletion of its production capacity, as its fields have relatively high natural decline rates. Consequently, Iran has between 10-15 years to find alternate sources of renewable energy to meet its domestic needs, while preserving its depleting oil resources for exports.

## Iran's 'controversial' response?

In order to maintain its ability to generate vital oil and gas export revenues, Iran now has high hopes that nuclear power will help meet its growing energy requirements. In September, Tehran finally took control of the much-delayed nuclear power plant at Bushehr, [a project](#) that was developed by West Germany in 1978 but finally completed with Russian assistance. This means that Iran is currently home to the only commercial nuclear power plant in the Middle East. Indeed, Tehran also wants to expand its nuclear programs. Two additional units are planned for Bushehr and a nuclear power plant at Darkhovin has been announced.

Yet this is by no means Iran's first attempt at developing nuclear power capabilities. The fundamental economic rationale for developing nuclear power was first recognized by the Shah in the early 1970s. According to the CIA, the Shah had ambitious plans for a civilian nuclear energy program that called for the construction of 20 nuclear power plants with an aggregate capacity of 20,000 megawatts. To operate these plants, he envisioned an eventual domestic capacity to enrich uranium and fashion the enriched product into fuel rods for the nuclear reactors.

The Shah's rationale for such a domestic enrichment capacity was to ensure a reliable supply of nuclear fuel for the power plants, thereby avoiding the possibility of electric power disruptions. As an initial step to acquire supplies of enriched uranium, the Shah [purchased](#) a 10% interest in and provided a \$1 billion loan to Eurodif, the European consortium organized to enrich uranium at facilities in France, Germany and the UK. In the difficult negotiations with the US over nuclear fuel enrichment, Washington refused to accede to Iranian requests to enrich US supplied nuclear material domestically. The Shah eventually [relented and deferred](#) domestic enrichment in order to move forward with the delivery of US nuclear reactors. However, he never signed an agreement with the US foregoing domestic nuclear enrichment. The Iranian Revolution made the point moot.

### **A Cautionary Tale**

The difficulties encountered in restarting Iran's nuclear energy program after the Revolution have reinforced Tehran's concerns over the reliability of external supply arrangements for nuclear fuel. Specifically, the experience with the US supplied Tehran Research Reactor (TRR), a small nuclear reactor (5 megawatts capacity) that produces medical isotopes, serves as a cautionary tale.

When the US originally [supplied the TRR](#) in 1967 under the "Atoms for Peace" program, the nuclear reactor was designed to operate with weapons grade 93% enriched uranium. However, following the 1979 Revolution, Washington refused to supply further nuclear fuel for the TRR. In addition, Eurodiff [refused](#) to honor Iran's ownership interest in its enrichment facilities and also declined to provide nuclear fuel. Things changed in 1987, when Argentina agreed to reconfigure the TRR to operate on 20% enriched uranium fuel, and finally delivered a supply of fuel plates to Iran in 1993.

In June 2009, in order to replenish the dwindling supply of nuclear fuel plates provided by Argentina, Iran asked the International Atomic Energy Agency (IAEA) to help arrange the purchase of 20% enriched uranium fuel plates for the TRR. No supplier could be found, given the sanctions regime against Iran. Tehran also failed in its attempts to [swap](#) Iranian 3.5% enriched uranium for externally supplied 20% enriched uranium fuel plates. Undeterred, Iran then embarked on a successful domestic effort to enrich uranium to the 20% level. Under the strict supervision of the IAEA comprehensive safeguards inspections regime, this has been largely [converted](#) into fuel plates for the TRR.

Accordingly, Iran's proven ability to enrich uranium to 20% level and produce nuclear fuel plates for its civilian activities provides a dilemma for those states opposed to its nuclear program. How can the P5+1 make credible demands that Iran foregoes the enrichment of domestically produced nuclear material and instead rely on imported nuclear fuel?

### **Pipedreams to Banish Nightmares**

Washington's response highlights the problem at hand. The US concedes that Iran can have nuclear power plants, but only if it forswears the right to enrich uranium and develop its own nuclear fuel production capability. Yet, it is highly unlikely that Iran will voluntarily embrace energy insecurity.

As a result, Iran's insistence on domestic nuclear enrichment has spawned a nightmare for the United States: a nuclear-armed Iran that threatens exclusive US control over access to Persian Gulf energy resources. This nightmare is rooted in the US interpretation of the scope of civilian nuclear programs that could be pursued within the safe harbor provided by the Nuclear Non-Proliferation Treaty (NPT). In order to encourage its allies (who did not possess nuclear weapons but wanted to pursue civilian nuclear programs) like Japan to sign, the United States asserted that the NPT only prohibited nuclear warheads and other nuclear explosive devices and, therefore, "what is not prohibited is permitted." Accordingly, nuclear enrichment under safeguards would be permitted: "Neither uranium enrichment nor the stockpiling of fissionable material in connection with a peaceful program would violate Article II [the prohibition against the acquisition of nuclear weapons]." The implications of the NPT have long been clearly understood by the US: "nuclear pregnancy" was possible but the possession of nuclear weapons would require an exit from the NPT.

Interestingly, the US has yet to establish to its own satisfaction the existence of an active Iranian nuclear weapons program. It has also acknowledged that [no decision](#) has been made by Iran to actually develop a nuclear weapon. Although often overlooked, it is [noteworthy](#) that neither the UN Security Council nor the IAEA has determined that Iran has violated the NPT.

### **The way forward**

Achieving energy security has long been a vital Iranian interest, whether under the Shah or the clerics. Preserving exclusive control over access to Persian Gulf energy resources has been a vital US national interest since the end of the Second World War. Accommodating these two clashing vital national interests is the fundamental challenge confronting US and Iranian negotiators. Key elements of a successful resolution of the US-Iran nuclear impasse are likely to include: voluntary capping of Iranian enrichment of uranium at the current 20% level; Iranian ratification of the previously signed more stringent Additional Protocol to the IAEA inspection regime; reaffirmation of Iranian renunciation of nuclear weapons; Iranian acquiescence with respect to any officially US declared embargo on oil exports to nuclear-armed adversaries of the US; lifting of US and UN sanctions against Iran; and a US declaration that it would not attack Iran except in self defense. Ultimately, engagement, normalization and detente will pave the way to peaceful and mutually beneficial relations between these two proud nations.

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For additional reading on this topic please see:

[Iran Adapts to Economic Sanctions](#)

[Iran Sanctions](#)

[The United States and Great Britain Navigate the Anglo-Iranian Oil Crisis](#)

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