

**Committee:** International Atomic Energy Agency (IAEA)

**Agenda Item:** Inspecting the nuclear energy usage of the State of Iran

**Student Officer:** Nazlı Emre - President Chair

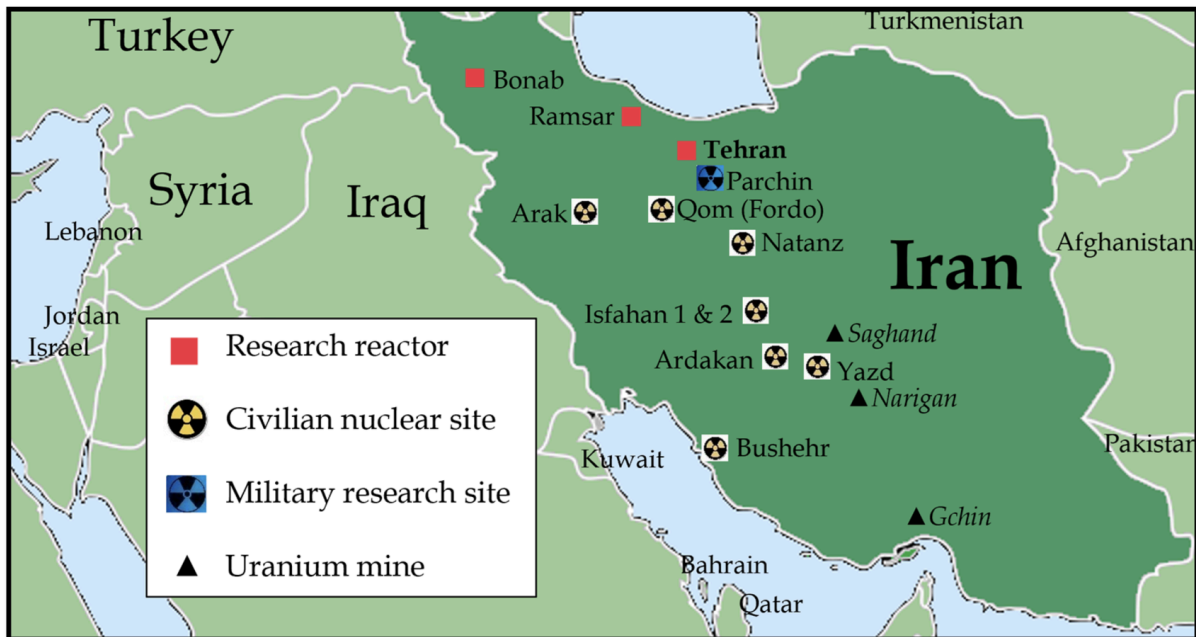
## Introduction

The State of Iran's nuclear energy program is a complex and multifaceted issue that has Eisenhower's "Atoms for Peace" initiative as its foundation. This issue comes from decades of scientific ambition, domestic necessity and geopolitical controversy. The idea was brought to life by Shah Mohammad Reza Pahlavi, who was inspired by Eisenhower, during the 1950s. Iran's nuclear aspirations were supported by Western allies, particularly the USA, as part of the "Atoms for Peace" initiative. The Shah aimed to modernize Iran's economy by reducing dependence on its abundant fossil fuel reserves and instead harnessing nuclear power to meet its growing energy demands. Over the decades, the program has evolved significantly, shaped by domestic priorities, regional tensions and international oversight.

The 1979 Islamic Revolution and the subsequent Iran-Iraq War ((1980-1988) disrupted these efforts, leading to the withdrawal of Western support and significant damage. Despite these challenges, Iran's leadership began to see nuclear energy not only as a tool for energy diversification but also as a symbol of technological self-sufficiency and national sovereignty. By the 1990s, Iran resumed its nuclear activities with the help of Russia, resulting in the eventual completion of the Bushehr Nuclear Power Plant. However, this revival brought intense inspection on Iran. Particularly as Iran expanded its uranium enrichment program, other nations became uncomfortable with Iran's potential use of technology for military applications.

Today, nuclear energy remains a small but symbolically significant part of Iran's energy mix, contributing approximately 2% of its electricity through the Bushehr facility. While Iran emphasizes the peaceful nature of its nuclear program, its advancements in uranium enrichment have raised concerns over possible proliferation, especially after revelations in 2002 of undeclared nuclear facilities. These concerns have fueled international tensions, leading to a series of sanctions and negotiations, such as the 2015 Joint Comprehensive Plan of Action (JCPOA), also known as the Iran Nuclear Deal. Despite setbacks, most importantly the USA withdrawal from the JCPOA in 2018, Iran has continued to advance its nuclear capabilities.

The International Atomic Energy Agency (IAEA) monitors Iran's nuclear activities to ensure compliance. Regular inspections and safeguards aim to verify the non-diversion of nuclear materials. The IAEA plays a critical role in monitoring and verifying Iran's nuclear activities under the framework of the Nuclear Non-Proliferation Treaty (NPT) and other international agreements such as the Comprehensive Safeguards Agreement (CSA), the Joint Comprehensive Plan of Action (JCPOA) and Additional Protocol.



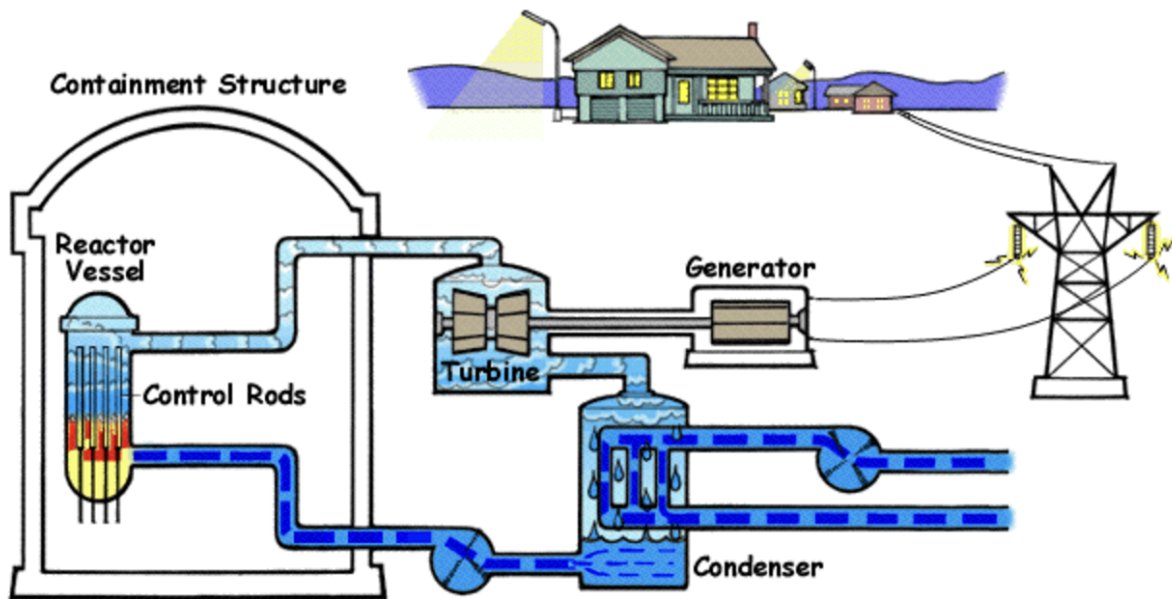
Map 1: Iran's research reactors, civilian nuclear sites, military research site and uranium mines

## Definition of Key Terms

**Nuclear energy:** Nuclear energy is energy released from the nucleus of an atom. It can be produced by fission or when nuclei fuse together.

**Nuclear power plant:** “Nuclear power plants are a type of power plant that use the process of nuclear fission in order to generate electricity. They do this by using nuclear reactors in combination with the Rankine cycle, where the heat generated by the reactor converts water into steam, which spins a turbine and a generator. Nuclear power provides the world with around 11% of its total electricity, with the largest producers being the United States and France” (University of Calgary). Nuclear power plants are most commonly fuelled by uranium-235.

**Nuclear reactor:** Nuclear reactors can be considered the heart of a nuclear power plant. The reactors produce heat by fission by containing and controlling nuclear chain reactions. The heat creates steam which is used to spin the turbines to create electricity. The main job of a nuclear reactor is to contain and control nuclear fission.



Picture 1: How a nuclear reactor works

**Nuclear fission:** Nuclear fission is a physical process where the nuclei of an atom split into two or more pieces and release a high amount of energy. The energy released is in the form of heat and radiation.

**Uranium:** Uranium is a metal that has several naturally occurring isotopes. Isotopes have the same chemical properties but have different physical properties and masses. Uranium-238 and uranium-235 are the two primordial isotopes. “Uranium-238 makes up the majority of the uranium in the world but cannot produce a fission chain reaction, while uranium-235 can be used to produce energy by fission but constitutes less than 1 percent of the world’s uranium” (International Atomic Energy Agency).

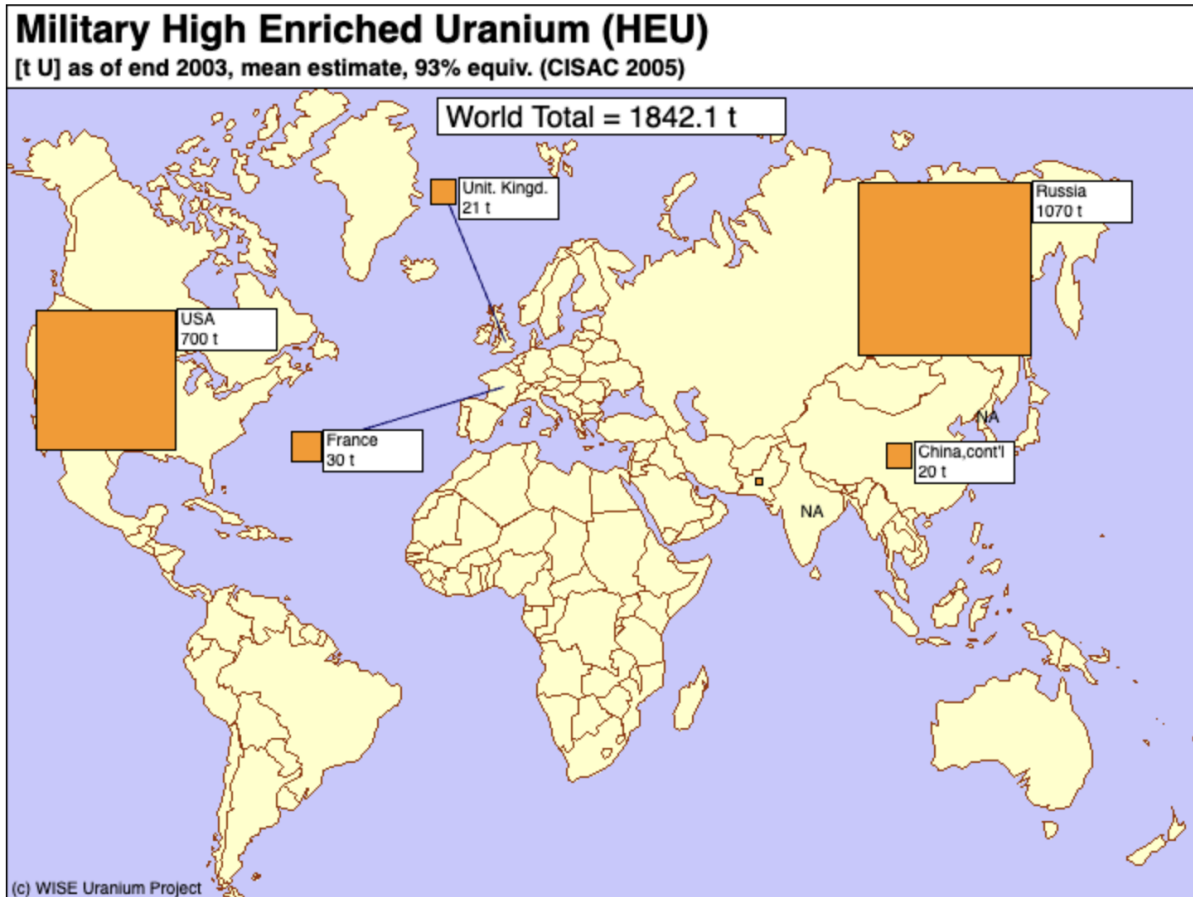
**High-enriched uranium (HEU):** Uranium enriched to at least 20% is considered high-enriched uranium. It has a high proliferation risk and is usually used in nuclear weapons. Certain research reactors historically used HEU for medical isotope production or materials testing.

**High-assay low-enriched uranium (HALEU):** Uranium enriched between 5% and 20%. It has a moderate proliferation risk. High-assay low-enriched uranium fuels are more efficient than traditional low-enriched uranium, allowing for smaller cores and longer operational lifespans. Higher enrichment levels involve more processing, raising production costs.

**Low-enriched uranium (LEU):** Uranium enriched to a maximum of 5%. It has a low proliferation risk. Low-enriched uranium is the standard fuel for most light-water reactors, which are the backbone of global nuclear energy production. It is widely produced and supported by existing infrastructure. Its lower enrichment level ensures it cannot be easily weaponized without further processing.

**Proliferation:** The definition of proliferation is “the fact of something increasing a lot and suddenly in number or amount” (Cambridge Dictionary).

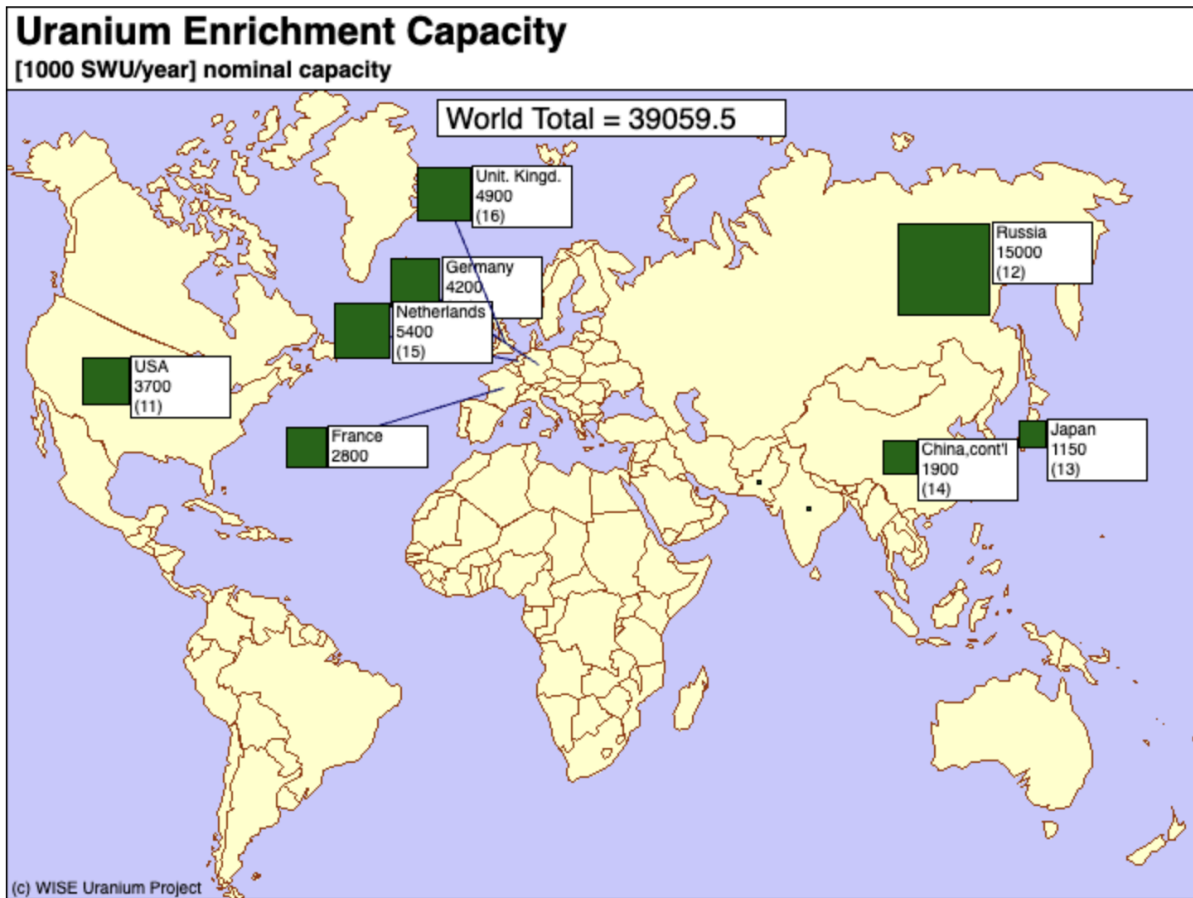
**Weapon-grade uranium (WgU):** Uranium needs to be enriched to at least 90% to be considered weapon-grade. In order to produce weapon-grade uranium, the concentration of uranium-235 is increased to more than 90 percent by using separation techniques.



Map 2: Countries with the highest amount of weapon-grade uranium (WgU)

**Enrichment capacity:** Uranium enrichment capacity refers to the capability of a facility or a country to process natural uranium and increase the concentration of uranium-235 (U-235) isotope, which is essential for nuclear fuel in reactors or, at higher concentrations, for nuclear weapons. This capacity is typically expressed in terms of separative work units (SWU), a standard measure of the effort required to separate isotopes of uranium during enrichment.

**Enrichment level:** Capacity depends on the level of enrichment needed.



Map 3: Countries with the highest uranium enrichment capacity

**Total Energy Supply (TES):** “Total energy supply (TES) includes all the energy produced in or imported to a country, minus that which is exported or stored. It represents all the energy required to supply end users in the country” (International Energy Agency). Oil is the world's largest energy source with 30.2%, followed by coal at 27.6% and natural gas at 23.1%.

**Centrifuge technology:** Most modern uranium enrichment uses gas centrifuges, which spin uranium hexafluoride ( $UF_6$ ) gas at high speeds to separate isotopes based on mass differences.

**Centrifuge cascades:** “A cascade consists of separation units, in this case centrifuges, arranged in parallel that make up a single stage. The width of the cascade is the number of elements in a given stage. These elements receive identical feed and generate the same product and waste” (Federation of American Scientists).

**Total energy consumption:** Total energy consumption refers to the amount of energy used by a country, organization or system over a specific period of time. It includes all energy sources consumed for different purposes, such as electricity, transportation, heating, industrial processes, etc.

**Total energy production:** Total energy production refers to the amount of energy generated within a country or by a system from domestic energy sources, such as fossil fuels, renewable resources and nuclear energy.

**Energy self-sufficiency:** A country that produces all the energy it consumes is considered energy self-sufficient. Iran is an energy self-sufficient country.

**Crude oil:** “A mixture of hydrocarbons that exists in liquid phase in natural underground reservoirs and remains liquid at atmospheric pressure after passing through surface separating facilities” (U.S. Energy Information Administration).

## Major Actors Involved

### International Atomic Energy Agency (IAEA)

The International Atomic Energy Agency (IAEA) is an independent intergovernmental organization affiliated with the United Nations. It was established in 1957. The IAEA monitors nuclear materials and facilities to ensure compliance with the Nuclear Non-Proliferation Treaty (NPT). It conducts regular inspections to verify that nuclear programs in member states are used exclusively for peaceful purposes. As a signatory to the NPT, Iran is obligated to allow IAEA inspections of its nuclear facilities. The IAEA verifies Iran's compliance with its safeguards agreement and ensures declared nuclear materials are not used for non-peaceful uses. The IAEA regularly publishes reports on Iran's nuclear program, providing updates to the international community and UN bodies on compliance and areas of concern.

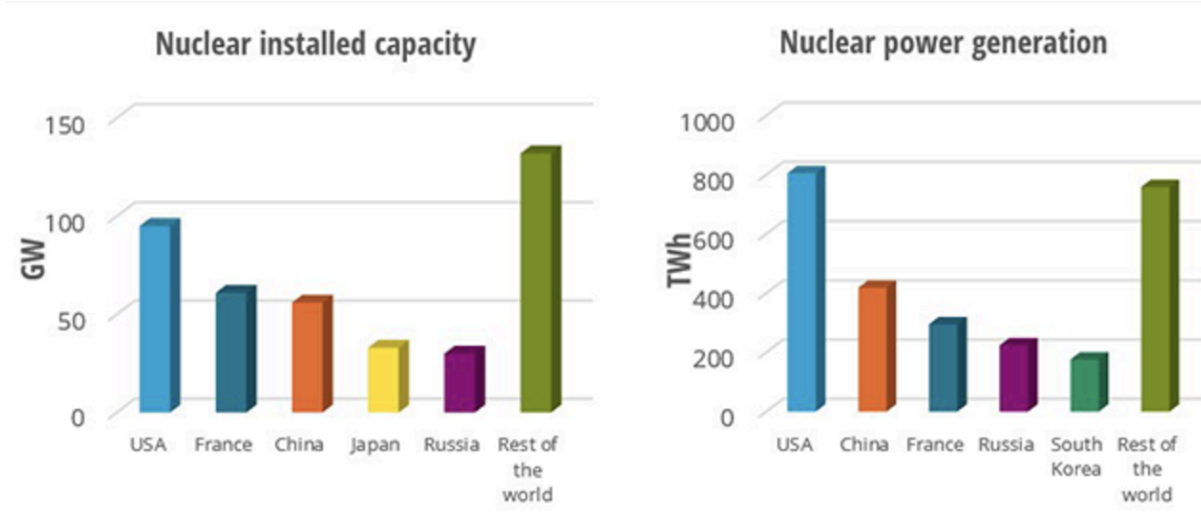
Iran agreed to implement the Additional Protocol under the 2015 Joint Comprehensive Plan of Action (JCPOA), thus granting IAEA inspectors enhanced access to facilities and undeclared sites. This measure increased transparency and confidence in Iran's nuclear program. The IAEA was tasked with verifying Iran's compliance with JCPOA obligations, such as limiting uranium enrichment to 3.67% and reducing stockpiles of enriched uranium. The agency installed advanced monitoring technologies, including cameras and real-time systems, to track Iran's nuclear activities. Since the USA withdrawal from the JCPOA in 2018, Iran has gradually reduced its compliance, enriching uranium to levels as high as 60% and limiting IAEA access to certain sites. The IAEA has expressed concerns about Iran's lack of transparency, particularly regarding undeclared nuclear materials and facilities.

### European Union (UN)

The JCPOA, also known as the Iran Nuclear Deal, was signed in 2015 between Iran and the P5+1 (China, France, Russia, the UK, the United States of America and Germany) with the EU serving as a mediator. As the lead negotiator, the EU played an important role in coordinating and mediating the negotiations, represented by its High Representative for Foreign Affairs. The EU facilitated the implementation of the JCPOA and worked closely with the IAEA to make sure Iran was adhering to the agreement. The EU helped compromise the differences between Iran and Western powers, particularly the United States.

In 2018, the USA withdrew from the JCPOA under the Trump administration, reinstating sanctions on Iran. The EU responded by attempting to preserve the agreement despite significant challenges. Iran's reduced compliance following the withdrawal of the USA has tested the EU's diplomatic efforts. Some EU member states differ in their approaches to Iran, particularly regarding the balance between economic ties and security concerns. This causes internal division. The EU also maintains a separate policy from the USA on the issue of Iran.





Graph 1: Nuclear installed capacity and power generation by country (2022)

## The United States

The United States has been a central player in global efforts to address concerns about Iran's nuclear energy program. Its policies have ranged from diplomatic negotiations to economic sanctions and military threats. The USA remains highly influential in shaping Iran's nuclear activities. The USA's main goal in this issue has always been preventing Iran from acquiring nuclear weapons. The USA has been trying to uphold the Nuclear Non-Proliferation Treaty (NPT) and protect its allies such as Israel and the Gulf states.

During the 1970s, the USA supported Iran's civilian nuclear ambitions under the Shah as part of its strategic alliance in the Middle East. After the 1979 Iranian Revolution, the USA switched sides and started viewing Iran's nuclear advancements with suspicion. In 2002, Iranian dissidents exposed secret nuclear sites at Natanz and Arak, raising international alarm over possible weaponization intentions. The USA began actively pressuring Iran to limit its program. From 2006 to 2015, the USA led international efforts to impose economic sanctions on Iran, targeting its oil exports, banking system and trade. These sanctions crippled Iran's economy with the aim to bring Iran to the negotiating table while preventing funding for its nuclear activities.

President Obama signed the Joint Comprehensive Plan of Action (JCPOA) in 2015. The JCPOA placed significant restrictions on Iran's nuclear program in exchange for sanctions relief. President Trump withdrew the USA from the JCPOA in 2018 and reinstated unilateral sanctions, leading Iran to slowly reduce compliance with the deal. President Joe Biden offered to re-engage diplomatically with Iran to revive or renegotiate the JCPOA. But, Iran does not want to return to the negotiating table due to the continuing sanctions targeting Iran's oil exports and financial sector. Also, the USA maintains a credible threat of military action if Iran moves toward weaponization and supports Israeli and Gulf Arab partners with advanced military capabilities to counter potential threats. It is also worth mentioning that the USA doesn't get along with Russia and China on this issue since both countries maintain strategic ties with Iran.

## Russia

Russia has historically supported Iran's right to peaceful nuclear energy while opposing the weaponization of its program. Also, Russia has often acted as a mediator between Iran and Western nations. Russia has around 44% of the world's uranium enrichment capacity. Russia views Iran as a key partner in nuclear energy development and infrastructure projects, particularly in constructing nuclear power plants like the Bushehr Nuclear Power Plant. Russia supports Iran's rights under the Nuclear Non-Proliferation Treaty (NPT) to pursue peaceful nuclear energy. Russia's involvement in Iran's nuclear program strengthens its influence in the Middle East. It serves as a counterbalance to the USA's dominance in the region.

In the 1990s, after the Iran-Iraq War, Russia agreed to assist Iran in developing civilian nuclear energy, marking the start of close nuclear collaboration. Russia completed the construction of Iran's first nuclear power plant in Bushehr which has been operational since 2011. Russia was one of the key members who signed the Joint Comprehensive Plan of Action (JCPOA) in 2015. Russia presented itself as a defender of sovereignty and multilateral diplomacy throughout all of it.

## China

Iran is an important partner in China's Belt and Road Initiative (BRI). Iran is a major supplier of oil to China and maintaining stability in its nuclear program ensures the uninterrupted flow of energy. Strengthening ties with Iran helps China counterbalance the USA's influence in the Middle East. While supporting Iran's peaceful nuclear ambitions, China insists on compliance with the Nuclear Non-Proliferation Treaty (NPT) to prevent nuclear weaponization. China was another key member who signed the Joint Comprehensive Plan of Action (JCPOA) in 2015. China has provided technical assistance to Iran and supported lifting sanctions on Iran.

China is one of the largest importers of Iranian oil, bypassing USA sanctions by employing mechanisms such as barter systems and yuan-based transactions. Iran is a critical energy supplier for China's growing economy, making stability in its nuclear program a priority for Beijing. In 2021, China and Iran deepened their alliance by signing a 25-year cooperation agreement focusing on energy, trade and military cooperation. China carefully balances its ties with Iran and its relationships with Gulf states and Israel, maintaining regional influence without alienating key partners.

## The United Kingdom, France and Germany (E3)

The E3 initiated negotiations with Iran to address concerns over its nuclear program after the disclosure of undeclared facilities in Natanz and Arak in 2002. In 2004, the Paris Agreement saw Iran temporarily suspend enrichment activities in exchange for European economic incentives. However, the agreement collapsed in 2005. The E3 signed the JCPOA in 2015. They worked to facilitate the lifting of sanctions and ensure Iran adhered to its commitments under the JCPOA. After the USA withdrew from the JCPOA in 2018, the E3 tried to keep the deal alive by working with Iran and other signatories. The E3 has continued to advocate for a diplomatic resolution and the revival of the JCPOA since Iran reduced compliance following the withdrawal of the USA.

## Israel

Israel argues that Iran's nuclear energy program is a cover for developing nuclear weapons, despite Tehran's insistence that its program is purely peaceful. The stockpiling of enriched uranium and the installation of advanced centrifuges heighten Israel's alarm about a "breakout" capability. Iran's support for anti-Israeli groups such as Hezbollah and Hamas increases Israeli fears of nuclear capabilities being used against these groups. Israel has repeatedly emphasized that it will take military action if necessary to prevent Iran from acquiring nuclear weapons, a stance reflected in its military exercises simulating strikes on Iranian facilities.

Israel has consistently lobbied against the JCPOA, arguing that it does not sufficiently limit Iran's nuclear capabilities and that lifting sanctions provides Tehran with resources to fund regional militancy. Former Prime Minister Benjamin Netanyahu famously opposed the deal, presenting evidence at the UN alleging Iranian violations of the agreement. Israel actively works with allies, including the USA and European nations, to keep Iran's nuclear activities under control. Israel also has strong ties with Gulf Arab states which share its concerns about Iran. Israeli intelligence continues to monitor and disrupt Iran's nuclear advancements through espionage, cyberattacks and other covert measures. Israeli leaders frequently raise the issue in international forums, aiming to mobilize global opinion against Iran's nuclear program. Despite Israeli efforts, Iran has made significant progress in uranium enrichment, heightening the urgency of Israel's concerns.

## The Gulf Arab States

The Gulf Arab States include Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates. The Gulf Arab States view Iran's nuclear program as a destabilizing factor that could trigger a regional arms race. Gulf states argue that the Joint Comprehensive Plan of Action (JCPOA) while limiting Iran's nuclear activities temporarily, fails to address broader issues such as Iran's ballistic missile program and its support for regional proxies.

Saudi Arabia, Iran's primary regional rival, has been the most vocal in opposing Iran's nuclear ambitions. It views Tehran's program as a direct threat to its sovereignty and regional influence. The UAE shares Saudi Arabia's concerns over Iran's nuclear program, particularly its implications for regional security and trade routes. Despite its concerns, the UAE has significant economic ties with Iran, particularly through Dubai, which serves as a hub for Iranian trade. Bahrain's stance on Iran's nuclear program closely aligns with Saudi Arabia, advocating for international measures to limit Iran's capabilities. Kuwait takes a more neutral and balanced approach compared to Saudi Arabia or Bahrain. It often acts as a mediator in regional disputes, advocating for dialogue between Iran and its Gulf neighbors. Oman has historically played a mediatory role in Iran-related disputes and maintains good relations with Iran. Qatar shares a closer relationship with Iran compared to the other Gulf states.

## General Overview of the Issue

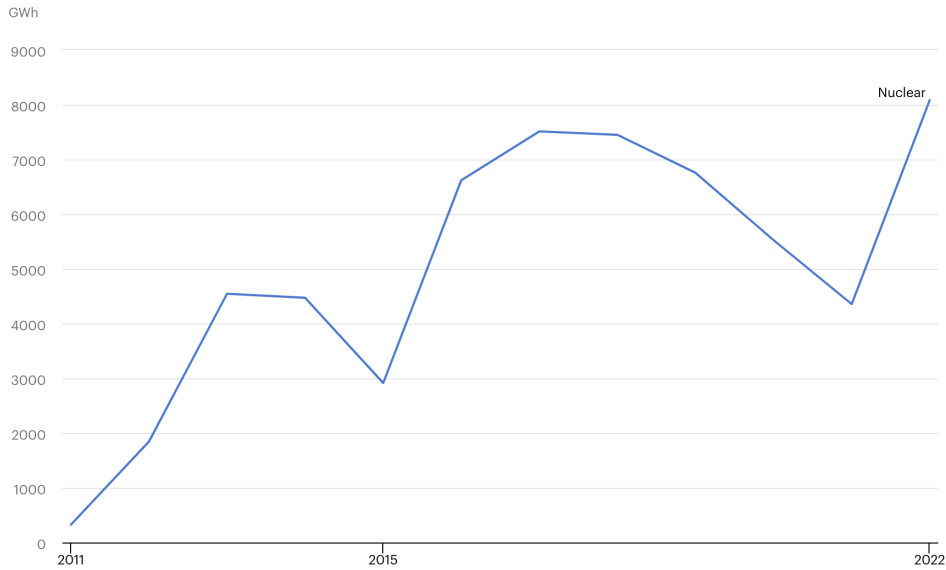
### Energy production and consumption in Iran

The total energy consumption of Iran is 315.84 billion kWh per year, which equals to an average of 3.542 kWh per capita. The total production of energy in the State of Iran is 361 billion kWh, which is more than the country's total energy consumption. The total production is 114% of the total consumption. This means that Iran could be self-sufficient with domestically produced energy if they wanted to. The country generates most of its electricity from thermal power plants, with renewables and nuclear energy playing minor roles. Iran's main energy sources are natural gas and oil. Iran is a major producer of oil and natural gas, with fossil fuels dominating its energy mix. 71.8% of Iran's total energy consumption is natural gas and 26.2% of it is oil. Crude oil is 40.1% and natural gas is 58.6% of the total energy production. For the total energy consumption, 57.9% of it is natural gas and 29.2% is oil products.

Iran holds the world's second-largest natural gas reserves. The natural gas production of the State of Iran has increased 352% since 2000. In 2021, it produced 151.8 billion cubic meters of natural gas. As of 2023, Iran produced approximately 3.6 million barrels per day (bpd) of crude oil, contributing around 4% to global oil production. Iran's domestic oil consumption has been self-effacing due to refining constraints. By 2007, petrol consumption was estimated at around 1.8 million bpd, with about one-third imported. Despite the USA's sanctions, Iran's oil exports have climbed to near multi-year highs of 1.7 million bpd, primarily purchased by China. Iran has been exploring export opportunities to neighboring countries such as Iraq, Syria and Oman, with plans to export over 200 million cubic meters annually once all pipelines become operational.

When it comes to nuclear energy, the State of Iran holds an important position in the world. Iran has only one operational nuclear power plant, the Bushehr Nuclear Power Plant, with a capacity of about 1,000 MW. It supplies around 2% of the country's electricity needs. There are plans for additional reactors at the same site which will increase capacity significantly. Despite the challenges, sanctions and geopolitical tensions caused mainly by the USA, Iran has ongoing international collaboration on this issue, specifically with Russia.

Iran's uranium enrichment program has undergone significant expansion in recent years, with enrichment levels reaching up to 60%. While this remains below weapons-grade levels (90%), it far exceeds the 3.67% limit set by the Joint Comprehensive Plan of Action (JCPOA). The nuclear program is closely monitored by the International Atomic Energy Agency (IAEA), with periodic disputes over inspection access and transparency. The IAEA uses advanced surveillance tools, including remote monitoring systems and environmental sampling, to detect anomalies in nuclear operations. If a member state violates its obligations, the IAEA refers the matter to the UN Security Council for action, as seen in Iran's case.



Graph 2: Nuclear energy generation of Iran between 2011-2022

## Historical context of Iran's nuclear program

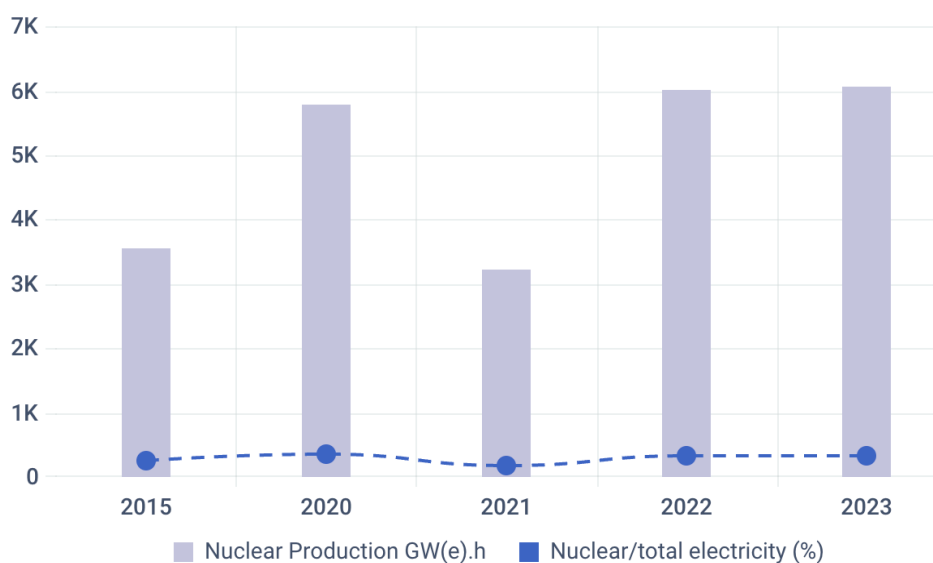
Iran's nuclear started during the 1950s under Shah Mohammad Reza Pahlavi, who envisioned nuclear energy as a cornerstone of modernization and economic development. Under the presidency of Eisenhower, the USA launched the "Atoms for Peace" program in 1953, under which Iran received its first research reactor, a 5 MW light-water reactor installed at Tehran University in 1967. The reactor was supplied with highly enriched uranium (HEU). In 1970, Iran signed the Nuclear Non-Proliferation Treaty (NPT), thus committing to the peaceful use of nuclear energy and accepting IAEA safeguards. By the 1970s, Iran pursued an ambitious nuclear program to reduce reliance on fossil fuels with its increasing oil revenue. Partnerships were established with France and Germany. In 1975, German company Siemens began constructing two nuclear reactors at Bushehr. The Shah aimed to develop 20 nuclear power plants by 1994, framing the initiative as essential for sustainable energy and economic growth. However, Iran didn't even get close to achieving this goal for various reasons.

The 1979 Islamic Revolution marked a turning point. Many Western companies withdrew, halting nuclear projects, including Siemens's work on the Bushehr plant. The new Islamic Republic was skeptical of Western motives and deprioritized nuclear energy. Instead, they focused on conventional energy sources like oil and gas. Iran's nuclear facilities suffered extensive damage during the Iran-Iraq War between 1980-1988. Bombing campaigns targeted the Bushehr plant, further delaying progress. Despite these setbacks, Iranian leaders began to reconsider the importance of nuclear energy for national security and independence.

In the 1990s, Iran revitalized its nuclear ambitions. Russia stepped in to help complete the Bushehr Nuclear Power Plant. A 1995 agreement between Tehran and Moscow allowed for the transfer of nuclear technology which raised international concern. During this period, Iran also began secretly developing uranium enrichment capabilities, reportedly acquiring centrifuge designs and components from the A.Q. Khan network. "Abdul Qadeer Khan, widely viewed as the father of Pakistan's nuclear weapons program, was arrested on January 31, 2004 for his key role in the black market sale of nuclear technology and equipment to Iran, North Korea, Libya, and possibly others. A.Q. Khan's nuclear smuggling network prospered throughout the 1980s and 1990s and was linked to middlemen and businesses in over 20 countries. The network offered buyers a menu of both technical expertise and materials with prices ranging from millions to hundreds of millions of dollars" (MacCalman, *Journal of Strategic Security*). These activities were revealed in 2002, leading to allegations that Iran's nuclear program could have military dimensions. In 2002, an Iranian dissident group exposed previously undisclosed nuclear facilities at Natanz and Arak, causing global alarm. The IAEA began investigations and found that Iran had failed to disclose sensitive nuclear activities, violating its Nuclear Non-Proliferation Treaty (NPT) obligations even though Iran insisted that its program was for peaceful purposes. As a result of increasing international pressure Iran agreed to suspend uranium enrichment and signed the Additional Protocol in 2003 to allow enhanced IAEA inspections. In 2004, the Paris Agreement collapsed.



Mahmoud Ahmadinejad was elected president in 2005. Ahmadinejad's presidency marked a more stubborn stance. Iran resumed full-scale enrichment activities, rejecting calls for limitations. The IAEA reported Iran's non-compliance to the UN Security Council (UNSC), leading to a series of resolutions. In 2006, The UNSC imposed sanctions targeting Iran's nuclear and missile programs. The P5+1 began negotiations with Iran. However, Iran continued enrichment, claiming peaceful purposes. The existence of the underground Fordow Fuel Enrichment Plant near Qom was revealed in 2009, further raising alarms about Iran's intentions. President Obama and allies emphasized the need for stricter oversight and sanctions. The UNSC imposed tighter sanctions. The most known is the UN Resolution 1929, adopted in 2015, which targeted Iran's financial and energy sectors. Also, the USA and EU implemented additional sanctions, severely impacting Iran's economy by restricting oil exports and financial transactions. Hassan Rouhani was elected president in 2013. Rouhani's election brought relief to Iran and the negotiations between Iran and the P5+1 resumed. In the 2013 Geneva Interim Agreement, Iran agreed to limit enrichment in exchange for partial sanctions relief. In 2015, the Joint Comprehensive Plan of Action (JCPOA) was signed between Iran and the P5+1. The JCPOA lifted the sanctions and allowed Iran to re-enter global oil markets and access frozen assets.



Graph 3: Nuclear share trend of Iran between 2015-2023

In 2018, President Donald Trump withdrew the USA from the JCPOA, arguing that it did not address Iran's ballistic missile program or regional activities. The USA reimposed sanctions under the “maximum pressure” campaign. Sanctions have significantly impacted Iran's economy, affecting oil exports, currency stability and access to international markets. In response to the USA's sanctions, Iran began breaching JCPOA limits. After Joe Biden was elected president, efforts to revive the JCPOA resumed but faced significant challenges such as Iran's advanced nuclear progress and regional tensions. Iran expanded its enrichment capacity, installing advanced centrifuges and enriching uranium to 60%. Currently, Iran is estimated to have enough enriched uranium for multiple nuclear weapons if weaponized, though they deny intentions to do so.

### The Joint Comprehensive Plan of Action (JCPOA)

The JCPOA, also known as the Iran Nuclear Deal, was signed in 2015 between Iran and the P5+1 countries along with the EU as the coordinator. The agreement granted the IAEA extensive access to Iranian nuclear facilities, including continuous monitoring and snap inspections under the Additional Protocol. In exchange for compliance, Iran was relieved from the sanctions. This included lifting restrictions on Iran's oil exports, financial transactions and international trade. Approximately \$100 billion in frozen Iranian assets were released globally. Certain restrictions were set to expire after 10 to 15 years, raising concerns about what would happen post-expiration. The main restrictions Iran agreed to by signing the JCPOA are:

- Keeping the uranium enrichment levels below 3.67%,
- Limiting its enriched uranium stockpile to 300 kilograms of uranium hexafluoride for 15 years, down from approximately 10,000 kilograms,
- Reducing the number of centrifuges to 5,060 first-generation centrifuges (IR-1) at the Natanz facility for ten years,
- Redesigning the Arak heavy water reactor to prevent it from producing weapons-grade plutonium,

- Converting the underground Fordow facility into a research center with no enrichment or nuclear material allowed at the site.

The primary aim was to prevent Iran from acquiring nuclear weapons while preserving its right to pursue peaceful nuclear energy under the Nuclear Non-Proliferation Treaty (NPT). The deal also aimed to reduce tensions in the Middle East, particularly between Iran and its rivals like Israel and Saudi Arabia. By lifting sanctions, the JCPOA aimed to integrate Iran into the global economy, promoting stability and reducing incentives for further nuclear advancements.

Despite these positive goals of the JCPOA, critics argue that the temporary nature of the deal allows Iran to legally resume nuclear activities after restrictions expire. The JCPOA does not address Iran's ballistic missile program, which many view as a delivery mechanism for potential nuclear weapons. Countries like Israel and Saudi Arabia have strongly opposed the JCPOA, arguing that it empowers Iran financially while failing to address its regional activities and proxy support. Also, despite sanctions relief, the Iranian population saw limited economic benefits, contributing to domestic dissatisfaction. As of 2024, the JCPOA remains in limbo. Iran's nuclear advancements, including enrichment up to 60%, have brought it closer to weapons-grade capability, while international efforts to restore the deal have faced major obstacles.

## Timeline of Important Events

Date:	Event:
1957	Iran began its nuclear program under the "Atoms for Peace" initiative.
22 April 1970	Iran signs the Nuclear Non-Proliferation Treaty (NPT).
1979	The Islamic Revolution
1980-1988	The Iran-Iraq War

1995	Iran signs a contract with Russia to complete the Bushehr Nuclear Power Plant.
2003	The Additional Protocol was signed.
2003	The Paris Agreement was signed.
2005	Mahmoud Ahmadinejad was elected president.
2013	Hassan Rouhani was elected president.
14 July 2015	The JCPOA is signed.
20 July 2015	The UN Security Council adopted Resolution 2231.
8 May 2018	President Trump announced the withdrawal of the USA from the JCPOA.
15 March 2021	The IAEA confirmed that Iran had begun enriching uranium at Natanz with IR-4 centrifuges.
15 June 2021	The Iranian government reported that Iran has produced 6.5 kg (14 lbs) of 60% enriched uranium.
24 June 2021	Iran's monitoring agreement with the IAEA expired.

## Related Documents

- The Joint Comprehensive Plan of Action (2015):  
<https://2009-2017.state.gov/documents/organization/245317.pdf>
- Treaty on the Non-Proliferation of Nuclear Weapons (1970):  
<https://www.iaea.org/sites/default/files/publications/documents/infcircs/1970/infcirc140.pdf>
- The UNSC Resolution 2231 (2015):  
<https://documents.un.org/doc/undoc/gen/n15/225/27/pdf/n1522527.pdf>
- The UNSC Resolution 1929 (2010):  
[https://www.iaea.org/sites/default/files/unsc\\_res1929-2010.pdf](https://www.iaea.org/sites/default/files/unsc_res1929-2010.pdf)

- The UNSC Resolution 1835 (2008):  
<https://www.iaea.org/sites/default/files/unscl835-2008.pdf>
- The UNSC Resolution 1803 (2008):  
<https://www.iaea.org/sites/default/files/unscl803-2008.pdf>
- The UNSC Resolution 1747 (2007):  
<https://www.iaea.org/sites/default/files/unscl747-2007.pdf>
- The UNSC Resolution 1737 (2006):  
<https://www.iaea.org/sites/default/files/unscl737-2006.pdf>
- The UNSC Resolution 1696 (2006):  
<https://www.iaea.org/sites/default/files/unscl696-2006.pdf>

## Past Solution Attempts

The USA and EU imposed additional unilateral sanctions, restricting Iran's oil exports, freezing assets and cutting it off from the global financial system. These measures severely impacted Iran's economy, bringing it to the negotiating table. The JCPOA signed between Iran and the P5+1 in 2015 was seen as a major success in restraining Iran's nuclear ambitions. However, it received a lot of criticism regarding its sunset clauses which stated that Iran is legally allowed to resume nuclear activities after restrictions expire. After the USA's withdrawal from the JCPOA under the presidency of Donald Trump in 2018, Joe Biden tried to get the USA to rejoin the JCPOA. While the JCPOA was the most comprehensive attempt to inspect and regulate Iran's nuclear activities, its partial collapse and Iran's nuclear advancements show the difficulty of resolving the issue.

The IAEA began inspections under Iran's obligations as a signatory of the Nuclear Non-Proliferation Treaty. After revelations of secret facilities in Natanz and Arak in 2003, the IAEA initiated more rigorous inspections and reported Iran's failure to declare nuclear materials and activities. Iran signed the Additional Protocol to the NPT, granting the IAEA expanded access to facilities. However, compliance was inconsistent.

The E3 countries signed the Paris Agreement with Iran in 2003 to temporarily suspend uranium enrichment in exchange for economic and technological incentives. Iran agreed to this suspension but later resumed enrichment in 2005. After the Paris Agreement failed, the UNSC passed a series of resolutions imposing sanctions on Iran. You can find these resolutions in the related documents section.

## Possible Solutions

The most effective solution to this issue would be rejoining and strengthening the JCPOA and making sure it actually serves its purpose this time. This can be accomplished by modifications to address criticisms, such as extending "sunset clauses" and including provisions on Iran's ballistic missile program. Enhancing IAEA monitoring is another effective solution. Increasing the inspections and granting the IAEA permanent access to all Iranian nuclear facilities, including military sites, would increase compliance with the NPT. Detected non-compliance through inspections could result in immediate sanctions, discouraging any non-compliance. You can also focus on interim steps, such as freezing uranium enrichment at current levels in exchange for limited sanctions relief.

Regional security agreements and economic incentives can be another solution. Advocating for a nuclear weapons-free zone in the Middle East region would result in Israel having to disclose its nuclear capabilities and Iran to commit to peaceful programs. Providing Iran with guarantees against military intervention in exchange for transparent nuclear activities is a good idea. Offering phased removal of sanctions contingent upon verified Iranian compliance with inspection regimes would be a good motivator for Iran to cooperate. Providing Iran with access to low-enriched uranium for energy use under strict international control would also increase Iran's compliance.

Engagement of non-Western countries and international collaboration would also help. Leveraging the influence of Russia and China to act as mediators could increase Iran's compliance. You can also strengthen multilateral enforcement mechanisms under the UN by ensuring penalties for violations are uniformly applied. Addressing public accountability is another valid idea. Transparency is important. Requiring Iran to publicly disclose its nuclear activities and progress reports would increase international pressure for compliance. Empowering NGOs and independent watchdog groups to report on Iran's nuclear activities would contribute to formal inspections, thus increasing public transparency.

## Useful Links

- Atoms for Peace Speech by Dwight D. Eisenhower, President of the USA, to the 470th Plenary Meeting of the UN General Assembly  
<https://www.iaea.org/about/history/atoms-for-peace-speech>
- Information on Iran's energy, economy, electricity, nuclear power, national laws and regulations, current issues and developments on nuclear power by the IAEA  
<https://www-pub.iaea.org/MTCD/publications/PDF/cnpp2009/countryprofiles/Iran/Iran2008.htm>
- IAEA and Iran - UN Security Council Resolutions and Statements  
<https://www.iaea.org/newscenter/focus/iran/iaea-and-iran-un-security-council-resolutions-and-statements>
- IAEA and Iran - IAEA Resolutions  
<https://www.iaea.org/newscenter/focus/iran/iaea-and-iran-iaea-resolutions>
- IAEA and Iran - IAEA Board Reports  
<https://www.iaea.org/newscenter/focus/iran/iaea-and-iran-iaea-board-reports>
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