UCBMUN XXI

# The United Nations Security Council: The Iran Nuclear Deal

Head Chair: Luke Sammarone
Crisis Director: Charles William Kable III

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**Letter from the Chair**

Dear Delegates,

Welcome to UCBMUN XXI! My name is Luke Sammarone, and I will be your Head Chair for the UNSC committee on the Iran Nuclear Deal. I am from New Jersey, and in my final semester at Cal studying Electrical and Computer Engineering. I am extremely excited for this committee, for it brings together the complicated policy decisions associated with technological progress. I am curious to see how you all will handle this immense responsibility.

I joined Model UN during my first year of college and participated as a legal staffer for the European Court of Human Rights legal committee. The next year, I chaired the International Court of Justice on a case dealing with U.S. involvement in Latin American politics during the 1980s. While specialized bodies are fantastic, I became hooked on crisis after working as an ACD for the committee on the Filipino Marcos regime at last year's UCBMUN. I am eager to experience crisis from behind the gavel. Besides MUN, I love building devices and getting lost on hikes.

This committee is geared towards the informed and fearless delegate. Expect to see a fast-paced committee that is faced with challenges on domestic and foreign fronts. For one to succeed, the history of each player and their relationship with the region must be considered. I will pay attention to the delegate who takes risks while maintaining strong command of speech and crisis. I believe depth and detail are critical for a successful crisis arc.

I look forward to meeting you and hearing your story. Please feel free to email me with any questions or concerns. Best of luck, and enjoy your experience at UCBMUN!

Sincerely,

Luke Sammarone

**Letter from the Crisis Director**

Dear Delegates,

I would like to welcome you to UCBMUN's UNSC Iranian Nuclear Deal. My name is Will Kable and I will be your crisis director for this committee. I was born in Atlanta, GA but spent 6 years in the Pacific Northwest. I am currently a senior studying Nuclear Engineering in the College of Engineering at UC Berkeley. This issue is very close to my heart, and I have spent the last year researching and understanding the resolution. I hope to have a wonderful committee and I know you will surprise me with some devious and substantive schemes.

I have been doing Model United Nations for three years now and I have previously served as Legal Staff for the International Court of Justice Committee, Crisis Director for the North Korea: 2037 Committee, and Crisis Director for the Colombian Peace Accords Committee. As a Nuclear Engineer, I am very interested in nuclear policy and its relation to the global political landscape.

The subject of this committee certainly covers one of the most difficult diplomatic crises of the 21st Century. It will be your job to traverse political, economic, and military situations that will directly affect the region and the world. The committee will have several paths to success, however to understand the current situation at hand, basic scientific and engineering knowledge is paramount (But you certainly will not need an engineering degree to do well). For this committee, I will confront you with information and events that have directly applicability to the current state of affairs in the region.

I am excited to see how this committee will proceed. I hope for this experience to be both substantive and exciting. To this end, I plan on allowing the committee to explore many avenues and solutions. Enjoy researching for the difficult road ahead and feel free to contact me if you have any questions regarding committee or the nuclear cycle.

Sincerely,

Charles William Kable III

**Committee Structure**

**Member States**

This committee will revolve directly around negotiations between the Islamic Republic of Iran and the permanent members of the United Nations Security Council.

In 2015 the members of the UNSC included the following:

- The United States of America – permanent member
- The United Kingdom and Great Britain and Northern Ireland – permanent member
- Russia – permanent member
- France – permanent member
- China – permanent member
- Germany – (P5 plus Germany)
- Chad
- Nigeria
- Angola
- Jordan
- Malaysia
- Chile
- Venezuela
- New Zealand
- Spain
- Lithuania

Given the importance to the formation of the United Nations, the five permanent members of the council were each granted the power to veto a decision or resolution. This means that all committee resolutions must have the five signatures of the permanent members; however, it in no way permits them to inhibit discourse on an issue.

To help foster debate, we also reserve the right to include several regional powers to the UNSC as non-permanent members.

- Turkey
- Egypt
- Israel
- Saudi Arabia
- Syria
- Iraq

We understand that the inclusion of the countries will not be entirely historically accurate; however, we believe that these countries will add a great variety of topics to debate.

The first UNSC meeting will be held on March 26, 2015 in Lausanne, Switzerland.

All real-life progress made on the Iranian Nuclear Deal after this point will be voided for the committee. Any paths forward should be considered.

**Committee Dynamics, Rules, and Procedures:**

The United Nations Security Council is a body that wields immense power over international affairs. We are deciding to include veto power in order to accurately represent the tremendous difficulty involved in appeasing several powerful countries. Hopefully the veto will be used to accurately represent a respective country's interests; however, if the veto power is being used to stifle debate and committee progress, we reserve the right to revoke the veto power of a permanent member.

Each committee member will be able to utilize all of the resources of their respective nations. This includes military, economic, and any current diplomatic ties. The ultimate goal of this committee is to reach some form of resolution regarding the Iranian nuclear program. To what ends this is achieved is widely up to the delegates. Leeway will be given for various schemes; however, if a plan either is too absurd or will hinder debate, we will let you know so that you may reconsider your paths forward.

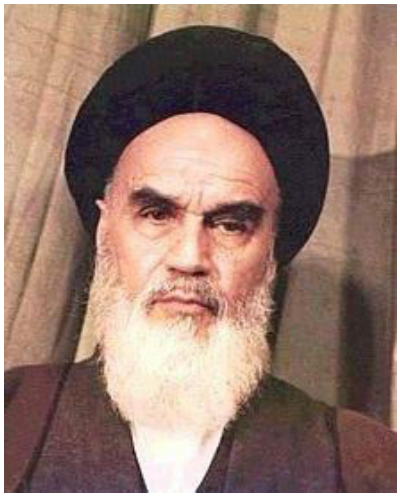
UCBMUN has a no electronics policy while in committee. This will be strictly enforced during committee sessions and especially so during voting bloc. When voting on directives, the Dais will take into account negative votes from permanent members. A vote of no from any five of the permanent members, i.e. a veto, will result in the non-passage of a directive. Given that this is a historical committee, plagiarism of past UN resolutions will not be tolerated.

**The Islamic Republic of Iran**

The history of Iran for the past 50 years has been one marked by tumult and bloodshed. The country sits a vitally strategic point that connects east to west. Once a western puppet, Iran has reshaped itself to become one of the regional powers vying for dominance in the Middle East. A deeply religious country, Iran is the largest country that adheres to the Shia form of Islam which often puts them

at odds with the rest of the Muslim world.

Iran in the early to mid-20th century was a monarchy with strong ties to western powers. These strong ties to the West came largely from a US- and British-organized coup in 1953 that ensured the rule of the pro-Western Mohammad Reza Shah. Given its strategic geographic position and plethora of natural resources, Iran became a hotbed for foreign interventions. This history was forever changed during the 1979 Islamic Revolution. Before this period, Iran was plagued with corruption and oppression under the autocratic Shah. Under the Shah, SAVAK, the Iranian intelligence agency, became increasing brutal towards the population. With the help of the CIA, SAVAK suppressed various attempts to oust the Shah while orchestrating the execution and torture of citizens and dissidents alike. One of the main opponents to the Shah was the Islamic cleric Ayatollah Ruhollah Khomeini. After a brief burst of riots in 1963, Ayatollah Khomeini was sent to live in exile, where he would remain until 1979. The common sentiment among the Iranian people was that the Shah was forsaking Iranian Islamic ideals to be supported by Western powers. Two different revolutionary ideas began to emerge: the first and most prevalent was the effort to replace the Shah with a



theocratic society based on fundamentalist ideals in the Qur'an, with the figurehead of this movement being the exiled Khomeini; the other wanted to replace the Shah with a more free and secular government, however they had neither the leadership nor the numbers of Khomeini.

The Islamic Revolution initially began after religious seminary students in the city of Qom, angered over a recent smear campaign against Khomeini, clashed with police. According to the government, two were killed in the clash; according to the opposition, 70 were killed and over 500 were injured. Encouraged by Khomeini (who declared that the blood of martyrs must water the "tree of Islam"), radicals pressured the mosques and moderate clergy to commemorate the deaths of the students in order to spur protests throughout the country. The largest was in the city of Tabriz, which descended into a

full-scale riot. "Western" and government symbols such as cinemas, bars, state-owned banks, and police stations were set ablaze. Under the pressure of the newly elected US president Jimmy Carter, the Shah decided to negotiate rather than to use more force against the still nascent protest movement. He promised that fully democratic elections for the would be held in 1979. Censorship was relaxed, and a resolution was drafted to help reduce corruption within the royal family and the government. Protesters were tried in civilian courts rather than by military court-martials, and were quickly released. As another sign on concession, the Shah began to fire all the SAVAK officials, and soon began to dismiss civil servants and government officials whom he felt the public blamed. Tensions began to ease until on August 19, in the southwestern city of Abadan, four arsonists barred the door of the Cinema Rex movie theater and set it on fire. 422 people inside the theatre were burned to death. Khomeini immediately blamed the Shah and SAVAK for setting the fire. Due to the pervasive revolutionary atmosphere, the public also blamed the Shah for starting the fire, despite the government's insistence that they were uninvolved. Tens of thousands of people soon took to the streets. After the revolution, it was disclosed that Islamist militants started the fire.

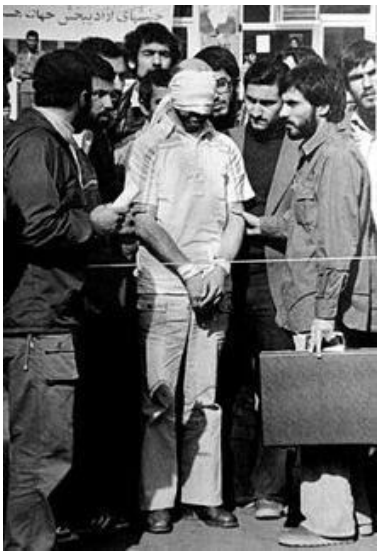
The Shah increasingly felt that he was losing control of the situation and hoped to regain it through complete appeasement. He decided to appoint Jafar Sharif-Emami, a former prime minister, again to the post of prime minister. Sharif-Emami was chosen due to his family ties to the clergy, but had a reputation of corruption during his previous premiership. Under the Shah's guidance, Sharif-Emami effectively began a policy of "appeasing the opposition's demands before they even made them.” The government legalized all political parties and released political prisoners, increased freedom of expression, curtailed SAVAK's authority and dismissed 34 of its commanders, closed down casinos and nightclubs, and abolished the imperial calendar. However, these efforts proved to be in vain when on Eid-e-Fitr, the holiday celebrating the end of Ramadan, hundreds of thousands of people took to the streets to demand the return of Khomeini and the establishment of a new Islamic Republic. Riots and strikes broke out across the country as the people rose up against the Shah. Leftists and Islamic groups soon began to join ranks as hoping that once the revolution was over, each respective side would have its way.

Realizing his days were numbered in Iran, the Shah left for exile in Egypt, never to return. Millions of people openly celebrated the Shah leaving and took to the streets. In his absence, Khomeini returned to Iran and established an interim revolutionary government to combat what remained of the monarchy. Fighting between the two governments quickly broke

out, with large number of defectors joining the Islamic Revolution. The country finally came under Khomeini's control on February 11, 1979 when the non-Islamic government seceded power in order to prevent further bloodshed. Around 3,000 protesters died during the revolution, however, Khomeini claimed the number to be 60,000 in order to solidify his legitimacy. A strictly Islamic fundamentalist government was soon established with Khomeini claiming that the constitution should be based "100% on Islam."

**The Iranian Hostage Crisis**

After the new revolutionary government took power, there was a legitimized effort to purge all Western influence from the country. The largest symbol of Western influence was the American Embassy in Tehran. On November 4, 1979, a large organized student protest gathered outside of the walls of the American Embassy. The students soon stormed the embassy and took 52 American hostages. Before this point, America, under the presidency of Jimmy Carter, had taken a more laissez-faire approach to the Iranian Revolution. Only limited support was given to the Shah before he was removed. Before this point, average Americans had limited experience with this part of the world and most were shocked by the audacity of the attack. An outpouring of anti-Islamic sentiments and pro-American rhetoric began to flood the American media landscape. The Iranians holding the Americans hostage claimed that



this was merely a symbolic effort and that the hostages were being given every amenity. However, it is now known that many of the hostages underwent various forms of psychological and physical abuse.

The situation became exacerbated when President Carter approved an ill-fated secret rescue mission under the name Operation Eagle Claw. Late in the afternoon of April 24, 1980, eight RH‐53D helicopters flew from the aircraft carrier USS Nimitz to a remote road serving as an airstrip in the Great Salt Desert of Eastern Iran, near Tabas. They encountered severe dust storms that disabled two of the helicopters, which were traveling in complete radio silence. The commander of the operation, Colonel Charles Alvin Beckwith, recommended that the mission be aborted, and his recommendation was approved by President Carter. As the helicopters repositioned themselves for refueling, one ran into a C‐130 tanker aircraft and crashed, killing eight U.S. servicemen and injuring several more. This failure was a dramatic blow to American prestige and power. Many Americans blamed Carter for the failure and believed Americans should have done more to retrieve the hostages. However, by taking the hostages, Iran lost a significant amount of international support. The subsequent sanctions also severely hurt the already floundering Iranian economy.

**The Iran-Iraq War**

Certainly, the deadliest conflict that Iran has been involved in, the Iran-Iraq War was a prolonged conflict that would shape Iranian policy for decades to come. The Iran–Iraq War began when Iraq invaded Iran on September 22, 1980. It followed a long history of border disputes, and was motivated by fears that the Iranian Revolution in 1979 would inspire insurgency among Iraq's long-suppressed Shia majority, as well as Iraq's desire to replace Iran as the dominant Persian Gulf state.

The war began with a rapid invasion of Iraqi forces deep into Iranian territory. Iraqi leader Saddam Hussein justified the invasion by stating that the intention was to blunt the edge of Khomeini's movement and to thwart his attempts to export his Islamic revolution to Iraq and the Persian Gulf states. Saddam hoped that the invasion would cause the people of Iran to turn against the fledgling Islamic government. However, the opposite was achieved and the Iranian people rallied together against Iraq. The Iraqi forces were severely underprepared and unequipped for a full-scale invasion against a country as large as

Iran. Iraqi forces soon became stalled as Iran began to muster a determined counter-offensive. On November 28, Iran launched Operation Morvarid (Pearl), a combined air and sea attack which destroyed 80% of Iraq's navy. Iraq quickly realized that it had underestimated the strength and resolve of the Iranian military.

Despite Iran's successful defense of Iraqi forces, it was unable to make any meaningful advances into Iraqi territory. As a result, the war entered a bitter stalemate with neither side being able to advance. During this period, Iran was also

experiencing deep political strife. The war was also an opportune time for America to take revenge on Iran by bogging them down in a bloody and prolonged conflict. Under the new and extremely popular president, Ronald Reagan, the United States began to sell huge amounts of planes, tanks, and equipment to the Iraqi government. This was meant to offset shortcomings in Iraqi military leadership and recent setbacks on the battlefield. Seeing as it was almost impossible for Iraq to win decisive victory, the United States simply wanted to prolong the war as long as possible.

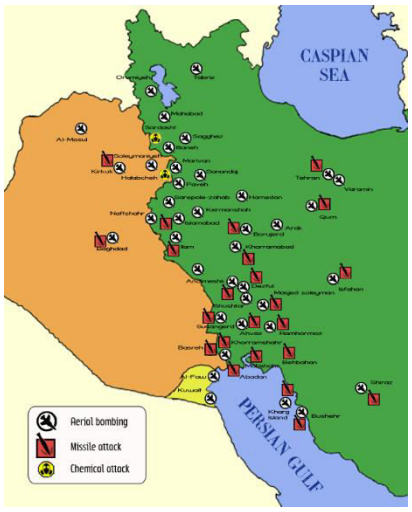
After two years of war, Iraqi morale was beginning to wane. A series of humiliating defeats had put Iraq on the defensive. The Iraqis, realizing that the Iranians were planning to attack, decided to preempt them with Operation al-Fawz al-'Azim on March 19, 1982. Using a large number of tanks, helicopters, and fighter jets, they attacked the Iranian buildup around the Roghabiyeh pass. Though Saddam and his generals assumed they had succeeded, in reality the Iranian forces remained fully intact. As a result, Saddam's army was unprepared for the Iranian offensives to come. On March 22, 1982, Iran launched an attack which took the Iraqi forces by surprise: using Chinook helicopters, they landed behind Iraqi lines, silenced their artillery, and captured an Iraqi headquarter. Iran then began launching "human wave" attacks, consisting of 1,000 fighters per wave. Though they took heavy losses, they eventually broke through Iraqi lines. Operation Undeniable Victory ended decisively in Iran's favor, and Iraqi forces were driven back. Iran soon went on the full offensive and began driving Iraq further and

further back. The fighting had battered the Iraqi military: its strength fell from 210,000 to 150,000 troops; over 20,000 Iraqi soldiers were killed and over 30,000 captured; two out of four active armored divisions and at least three mechanized divisions fell to less than a brigade's strength. To add insult to injury, Syria, one of the few nations supporting Iran, had blockaded Iraqi oil from entering the Mediterranean Sea.

Fearing that Iran was about to win the war, Arab monarchies began to funnel


large amounts of money into Iraq. The fear of Islamic fundamentalists overthrowing royal families became a real concern for many nations. With the war looking increasingly bleak for Iraq, President Ronald Reagan decided that the United States "could not afford to allow Iraq to lose the war to Iran," and that the United States "would do whatever was necessary to prevent Iraq from losing the war with Iran." The Soviet Union, also angry at Iran for purging its communist party, began shipping weapons and equipment to Iraq. This massive foreign investment against Iran further bred a strong sense of Iranian insularism and nationalism.

For the most part, Iraq remained on the defensive for the next six years of war, unable and unwilling to launch any major




offensives, while Iran launched no fewer than 70 offensives. Iraq's strategy changed from holding territory in Iran to denying Iran any major gains in Iraq. However, after a failed push into Baghdad, the war once again entered a bitter stalemate. Iran finally began to feel the weight of being vastly undersupplied without foreign help. The world dragged on for several years and both sides began to engage in more

unconventional tactics. Iran began to fund and organize insurgencies within Iraq and supported the full secession of Iraqi Kurdistan. On the other hand, Iraq had developed vast supplies of chemical weapons and would use them on any would-be Iranian offensives.

The war finally came to a head in 1986 when Iran staged several successful operations that once again put Iraqi forces on the defensive. To the rest of the world, it appeared as if Iran was winning the war. In April 1986, Ayatollah Khomeini even issued a fatwa declaring that the war must be won by March 1987. However, the Iraqi supply advantage proved to be too much to overcome, and the war again dragged on. With a war-weary Iran, Saddam Hussein began massive SCUD missile strikes against Iranian cities. Saddam sent a warning to Khomeini in mid-1988, threatening to launch a full-scale invasion and attack Iranian cities with weapons of mass destruction. Shortly afterwards, Iraqi aircraft bombed the Iranian town of Oshnavieh with poison gas, immediately killing and wounding over 2,000 civilians. The fear of an all-out chemical attack against Iran's largely unprotected civilian population weighed heavily on the Iranian leadership, and they realized that the international community had no intention of restraining Iraq. About the same time, the USS Vincennes shot down Iran Air Flight 655, killing 290 passengers. The lack of international sympathy disturbed the Iranian leadership, and they came to the conclusion that the United States was on the verge of waging a full-scale war against them, and that Iraq was on the verge of unleashing its entire chemical arsenal upon their major cities.

At this point, elements of the Iranian leadership, led by Akbar Hashemi

Rafsanjani (who had initially pushed for the extension of the war), persuaded Khomeini to accept the ceasefire. They stated that in order to win the war, Iran's military budget would have to be increased by 700% and the war would last until 1993. On July 20, 1988, Iran accepted United Nations Resolution 598, showing its willingness to accept a ceasefire. According to Iranian government sources, the war cost Iran an estimated 200,000–220,000 killed, or up to 262,000 according to the conservative Western estimates. Other estimates put

between 150,000 and 340,000 Iraqis dead, and 450,000 to 730,000 Iranians. The war eventually ended and territory was restored to pre-war borders. However, the resentment of Iranians towards the rest of the world, especially Americans, would carry forward much of their foreign policy.

**The Iranian Nuclear Program**

The foundations for Iran's nuclear program were laid on March 5, 1957, when a "proposed agreement for cooperation in research in the peaceful uses of atomic energy" was announced under the auspices of Eisenhower's Atoms for Peace program. The United States would give limited nuclear technology to its allies in order to counter-act Soviet influence. In 1967, the Tehran Nuclear Research Center (TNRC) was established, run by the Atomic Energy Organization of Iran (AEOI). The TNRC was equipped with a US-supplied, five-megawatt nuclear research reactor, which was fueled by highly enriched uranium.

Before the Islamic Revolution, the Shah perused limited attempts to develop a more advanced nuclear program; however, these efforts would not be realized. Following the revolutions, most of Iran's foreign support was cut off and the United States stopped supporting its test nuclear reactor. Since then, Iran has actively been pursuing nuclear capabilities of some form. In parallel to these efforts, the United States has actively been blocking and dissuading any country from cooperating with Iran towards its goal. It was well-known that several other nations in the region were also pursuing nuclear weapons and the United States made nuclear non-proliferation a top priority. As a result of American intervention and the ongoing Iran-Iraq War, little to no progress was made by Iran towards developing its nuclear program until the 21st century.

However, from a series of deals with Russia, Iran did gain some technical expertise in both nuclear science and missile design. In the early 2000s, the

situation began to escalate when reports of secret nuclear facilities in Iran were revealed to the world. The International

Atomic Energy Agency (IAEA) demanded access to the facilities but under the laws at the time, Iran was under no obligation to allow inspections of the facilities. The IAEA reported that Iran had not declared sensitive enrichment and reprocessing activities. Iran consistently denied these allegations and insists that its nuclear development was for peaceful purposes. Iran also claims that it must keep any program secret because the United States will prevent any contractors from working with the country. After a report was issued by the IAEA regarding the discrepancies, the United Nations Security Council demanded that all nuclear activities be ceased. To put pressure on Iran to end its nuclear program, the UNSC imposed the first sanctions against Iran. The defiant Iranian president Mahmoud Ahmadinejad argued that the sanctions were "illegal" and imposed by "arrogant powers."

A subsequent more detailed investigation found that that Iran had systematically failed to meet its obligations under its Nuclear Non-Proliferation Treaty (NPT) safeguards agreement to report those activities to the IAEA, although it also reported no evidence of links to a nuclear weapons program. France, Germany, and the United Kingdom (the EU-3) undertook a diplomatic initiative with Iran to resolve questions about its nuclear program. On October 21, 2003 in Tehran, the Iranian government and EU-3 foreign ministers issued a statement known as the Tehran Declaration in which Iran agreed to cooperate with the IAEA; to sign and implement an Additional Protocol as a voluntary, confidence-building measure; and to suspend its enrichment and reprocessing activities during the course of the negotiations.

Iran was obligated to inform the IAEA of its importation of uranium from China and subsequent use of that material in uranium conversion and enrichment activities. It was also obligated to report to the IAEA experiments with the separation of plutonium. However, the Islamic Republic reneged on its promise to permit the IAEA to carry out their inspections and suspended the Additional Protocol agreement in October 2005. On the question of whether Iran had a hidden nuclear weapons program, the IAEA's November 2003 report

states that it found "no evidence" that the previously undeclared activities were related to a nuclear weapons program, but also that it was unable to conclude that Iran's nuclear program was exclusively peaceful. Iran remained defiant for the next several years despite increasing sanctions. They continued to maintain that any nuclear activities were peaceful and that even if they were developing a bomb, they had the right to do so.

The situation started to become a major concern for the United States and other Western powers. Satellite imagery showed that several large-scale nuclear facilities were being developed at Natanz and Esfahan. These enrichment facilities were shown to be the ones commonly used to develop nuclear reactor fuel; however, they can also easily be used to make highly enriched uranium for nuclear weapons. In 2006, President Ahmadinejad issued another defiant statement, saying, "Our answer to those who are angry about Iran achieving the full nuclear fuel cycle is just one phrase. We say: Be angry at us and die of this anger," because "We won't hold talks with anyone about the right of the Iranian nation to enrich uranium." The United States diplomatic response proved equally as obtuse. No effort was made to initiate talks with Iran during this time and the hope was that the increased sanctions would force Iran to act. President George W. Bush insisted on August 31, 2006, that "there must be consequences" for Iran's defiance of demands that it stop enriching uranium. He asserted that "the world now faces a grave threat from the radical regime in Iran." Iran had been previously labeled as a member of the "Axis of Evil" by President Bush in a previous speech.

Despite the increasing desire to put more pressure on Iran, in 2007, the IAEA, with increased access to Iranian facilities, issued several reports stating that Iran was


now complying with current safeguards and insisted that they be able to develop Low Enriched Uranium, despite the UNSC's request that they cease enrichment altogether. The discourse between the United States and Iran began to change with the election of President Obama in 2008. President Obama vowed to remain tough on Iran, but would be willing to open negotiations with Iran regarding their

nuclear program. This was a drastic change in policy as previously the Untied States refused to negotiate with Iran unless there was full capitulation. During this time, there were also conflicting reports from US and Israeli intelligence agencies about the level of Iranian enrichment facilities. Israeli intelligence argued that Iran was only a few years from developing full nuclear capabilities; however, US intelligence found no such evidence. This, however, did not stop international concern about the program because the transition from low enrichment to high enrichment is quite trivial.

The international community began to apply more and more pressure on Iran, imposing tougher and tougher sanctions. It is also believed that Israeli and US intelligence agencies began to assassinate several nuclear scientists in Iran to delay the program. In 2012, the IAEA released a report showing continued expansion in Iranian uranium enrichment capabilities and that Iran had produced approximately 233 kg of near-20% enriched uranium, an increase of 43 kg since the previous August 2012 IAEA report. A malicious computer program known as Stuxnet was used to target high-value nuclear infrastructure in Iran including either the Bushehr Nuclear Power Plant or the Natanz nuclear facility. The program worked by causing the centrifuges used to enrich uranium to spin erratically until catastrophic failure. Due to a deteriorating economic situation, Iran was forced to come to the negotiating table. After a series of short talks in 2012 and 2013, the foreign ministers of Iran and the P5+1 finally agreed to a six-month interim deal that involved the freezing of key parts of the Iranian nuclear program in exchange for a decrease in sanctions, to provide time to negotiate a permanent agreement. Iran would stop enriching uranium beyond 5%, and would stop development of more facilities. This resolution was extended and negotiations to reach a definitive resolution began in 2015. This is where our committee will take place, so everything before this point will be valid, including the provisional resolution.

## Iran Nuclear Deal

The committee is under no obligation to abide by the actual nuclear deal agreed upon in 2015; however, it will prove useful to review provisions in the treaty.

### Iran's commitments

- Halt production of near-20% enriched uranium and disable the centrifuges used to produce it.
- Start neutralizing its near-20% enriched uranium stockpile.
- Refrain from enriching uranium in nearly half of the installed centrifuges at its Natanz site and 3/4 of centrifuges at its Fordow site.
- Limit centrifuge production to what is needed to replace damaged machines.
- Refrain from building additional enrichment facilities and advancing research and development of enrichment.
- Refrain from commissioning, fueling, or adding reactor components to its Arak reactor and halt production and additional testing of fuel for the reactor.
- Refrain from building a facility capable of reprocessing, which would allow Iran to separate out plutonium, which could be used to make nuclear bombs.

**P5+1, EU commitments**

- Suspend implementation of sanctions on Iran's petrochemical exports and on goods imported for use in its automotive industry.
- Suspend sanctions on Iran's import and export of gold and other precious metals.
- Shelve efforts to further curtail Iranian crude oil purchases by P5+1 countries.
- Free up Iranian money to help pay the educational costs of young Iranians, many of whom are attending US colleges and universities.
- Raise tenfold the ceilings for money transfers to and from Iran.
- Take actions to ease Iran's access to $4.2 billion in restricted Iranian funds in several installments. The first installment of $550 million in frozen assets will be released to Iran in the first week of February.

**Fundamentals of the Nuclear Cycle**

To understand this negotiation process, it will also be vital to understand some of the science that goes into developing a treaty about nuclear weapons. The inclusion of some basic information will hopefully represent the real-life need to

have policy-makers working with scientists in negotiations.

To begin, it is important to understand what nuclear material is. Radioactive materials are any unstable isotopes that decay to more stable isotopes and give off radiation when they do so. There are many radioactive elements; however, it is important to distinguish radioactivity from what is needed to make a nuclear weapon. To make a nuclear weapon, you must have access to significant amounts of a "fissile" isotopes. These are isotopes that can undergo a chain reaction of fission events. Fission is when a large stable atom is split into two smaller pieces, releasing large amounts of energy. The known isotopes that have been used for nuclear bombs are uranium-235 and plutonium-239. It is also possible to use uranium-233, but it is much more difficult and yields a smaller explosive. The only way of producing fissile material is through the enrichment of uranium and plutonium. Natural uranium is an inert rock found in the earth's crust that cannot be used in nuclear reactors or nuclear bombs. However, a very small fraction of natural uranium is uranium-235 (0.71%), which can be used in nuclear reactors and nuclear bombs. Plutonium, however, does not naturally occur in the planet's crust and is only formed from artificial processes. The most common way to produce it is by placing natural uranium-238 into a reactor for extended periods of time. The uranium-238 is then transmuted to form plutonium-239, which can be used in fission devices.

In order to obtain large concentrated amounts of uranium-235, a process known as enrichment must be performed. Technically, any amount of uranium-235 above 0.71% is considered enriched; however, there are clear guidelines about the specific levels of enrichment. The two main classifications of enrichment are Low Enriched Uranium (LEU) and Highly Enriched Uranium (HEU). Low Enriched Uranium is any amount of uranium where uranium-235 content is below 20%. This number is slightly ambiguous because 20% is well above the enrichment needed for nuclear reactors (~5%) but well below the enrichment needed for nuclear weapons (~90%). HEU, however, is any amount of natural uranium that contains uranium-235 content above 20%. Any uranium above 90% uranium-235 content is known as "Weapons Grade." The term Significant Quantity is also used by the IAEA to denote the approximate amount of nuclear material for which the possibility of manufacturing a nuclear explosive device cannot be excluded. The significant quantities are:

- 8 kg of plutonium with less than 80 % plutonium-238
- 8 kg of uranium-233
- 75 kg of LEU
- 25 kg of HEU

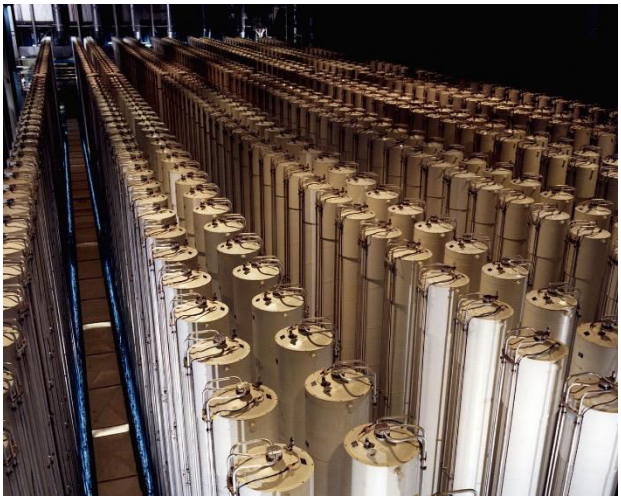
These numbers serve as guidelines for IAEA inspections and any amount of material greater than these amounts must be reported. The exact amount of enriched material needed to make a nuclear bomb can be described by an isotope's critical mass. The critical mass of various fissile isotopes is:

- Plutonium-239 - A spherical critical mass is about 11 kg (24.2 lbs)
- Uranium-235 - A spherical critical mass is about 56 kg (123 lbs)
- Uranium-233 – A spherical critical mass is about 15 kg (33 lbs)

These numbers can all be reduced with various technologies; however, they are good reference points for the amount of material that is needed for a nuclear bomb.

The details of enrichment are fairly complicated, but there are two basic commonly used practices. The first is known as gaseous diffusion. This is a more outdated approach and involves forcing gaseous uranium hexafluoride (UF6) through semipermeable membranes. After doing this several times, the uranium-235 and uranium-238 can be separated. The other approach, which is the method that Iran has used, is the gaseous centrifuge method. This method involves placing gaseous uranium hexafluoride into cylindrical centrifuges. The gas is then spun until the heavier uranium-238 is fully removed from the gas. This method involves significant amounts of infrastructure and thousands of aluminum tubes for the centrifuges.

The entire process of refining and enriching nuclear material is extremely labor- and capital-intensive and can only be done by nations with significant scientific and economic capabilities. The processes for producing LEU and HEU are quite similar and both can be achieved through the methods described above. To produce HEU simply requires running LEU through more stages of either diffusion or centrifuges. This is why the international community remains so concerned about Iranian nuclear capabilities. Iran has proven that it can enrich significant quantities of LEU and the switch to producing HEU would be quite simple. However, reports by the IAEA and several other regulatory bodies have found little to no evidence that Iran is currently doing or planning to do this.



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