

**Secretary Ernest Moniz**  
**Testimony before the Senate Committee on Armed Services**  
**Washington, DC**  
**July 29, 2015**

Chairman McCain, Ranking Member Reed and Members of the Committee, thank you for the opportunity to discuss the historic Joint Comprehensive Plan of Action (JCPOA) reached between the E3/EU+3 (China, France, Germany, Russia, the United Kingdom, the European Union, and the United States) and Iran.

The JCPOA prevents Iran from getting a nuclear weapon, provides strong verification measures that give us ample time to respond if Iran chooses to violate its terms, and takes none of our options off the table.

America's leading nuclear experts at the Department of Energy were involved throughout these negotiations. The list of labs and sites that provided support is long, including Argonne National Laboratory, Lawrence Livermore National Laboratory, Los Alamos National Laboratory, Oak Ridge National Laboratory, Pacific Northwest National Laboratory, Sandia National Laboratory, Savannah River National Laboratory, the Y-12 National Security Complex, and the Kansas City Plant.

These nuclear experts were essential to evaluating and developing technical proposals in support of the U.S. delegation. As a result of their work, I am confident that the technical underpinnings of this deal are solid and the Department of Energy stands ready to assist in its implementation.

This deal clearly meets the President's objectives: verification of an Iranian nuclear program that is exclusively peaceful and sufficient lead time to respond if it proves otherwise. The JCPOA will extend for at least ten years the time it would take for Iran to produce enough fissile material for a first nuclear explosive device to at least one year from the current breakout time of just two to three months.

Let me take a moment to walk through how the JCPOA blocks each of Iran's pathways to the fissile material for a nuclear weapon: the high enriched uranium pathways through the Natanz and Fordow enrichment facilities, the plutonium pathway at the Arak reactor, and the covert pathway.

Iran will reduce its stockpile of up-to-5 percent enriched uranium hexafluoride, which is equivalent now to almost 12,000 kg, by nearly 98 percent to only 300 kilograms of low (3.67 percent) enriched uranium hexafluoride, and will not exceed this level for fifteen years. In particular, Iran will be required to get rid of its 20 percent enriched uranium that is not fabricated into fuel for the Tehran Research Reactor. This is important because excess 20 percent enriched uranium could be converted into feed for centrifuges, which would be about 90 percent of the way to bomb material.

Iran's installed centrifuges will be reduced by two thirds, leaving it with just over 5,000 operating centrifuges at Natanz – its only enrichment facility – under continuous IAEA monitoring. For the next 10 years, only the oldest and least capable centrifuges, the IR-1, will be allowed to operate.

Iran has an established R&D program for a number of advanced centrifuges (IR-2, IR-5, IR-6, IR-8). This pace of the program will be slowed substantially and will be carried out only at Natanz for 15 years, under close International Atomic Energy Agency (IAEA) monitoring. Iran will not pursue other approaches to uranium enrichment.

The underground uranium enrichment facility at Fordow will be converted to a nuclear, physics, and technology center where specific projects such as stable isotope production are undertaken. There will be no uranium enrichment, no uranium enrichment research and development, and no nuclear material at the site at all for 15 years. In cooperation with Russia, Iran will pursue a limited program for production of stable isotopes, such as those used for medical applications. And the IAEA will have a right to daily access at Fordow as well.

All of these reasons taken together establish the one year breakout timeline for accumulating high enriched uranium.

In addition, Iran will have no source of weapons-grade plutonium. The Arak reactor, which according to its original design could have been a source of plutonium for a nuclear weapon, will be transformed to produce far less plutonium overall and no weapons-grade plutonium when operated normally. All spent fuel from the reactor that could be reprocessed to recover plutonium will be sent out of the country, and all of this will be under a rigorous IAEA inspection regime.

This deal goes beyond the parameters established in Lausanne in a very important area. Under this deal, Iran will not engage in several activities that could

contribute to the development of a nuclear explosive device, including multiple point explosive systems. These commitments are indefinite. In addition, Iran will not pursue plutonium or uranium (or its alloys) metallurgy for fifteen years. Because Iran will not engage in activities needed to use weapons grade material for an explosive device, an additional period can be added to the breakout timeline.

To be clear, this deal is not built on trust. It is built on hard-nosed requirements that will limit Iran's activities and ensure inspections, transparency, and verification. To preclude cheating, international inspectors will be given unprecedented access to all of Iran's declared nuclear facilities and any other sites of concern, as well as the entire nuclear supply chain, from uranium supply to centrifuge manufacturing and operation. And this access to the uranium supply chain comes with a 25 year commitment.

The IAEA will be permitted to use advanced technologies, such as enrichment monitoring devices and electronic seals. DOE national laboratories have developed many such technologies.

If the international community suspects that Iran is trying to cheat, the IAEA can request access to any suspicious location. Much has been made about a 24 day process for ensuring that IAEA inspectors can get access to undeclared nuclear sites. In fact, the IAEA can request access to any suspicious location with 24 hours' notice under the Additional Protocol, which Iran will implement under this deal. This deal does not change that baseline. The JCPOA goes beyond that baseline, recognizing that disputes could arise regarding IAEA access to sensitive facilities, and provides a crucial new tool for resolving such disputes within a short period of time so that the IAEA gets the access it needs in a timely fashion — within 24 days. Most important, environmental sampling can detect microscopic traces of nuclear materials even after attempts are made to remove the nuclear material.

In fact, Iran's history provides a good example. In February 2003, the IAEA requested access to a suspicious facility in Tehran suspected of undeclared nuclear activities. Negotiations over access to the site dragged on for six months, but even after that long delay, environmental samples taken by the IAEA revealed nuclear activity even though Iran had made a substantial effort to remove and cover up the evidence. This deal dramatically shortens the period over which Iran could drag out an access dispute.

The JCPOA will be implemented in phases — with some provisions in place for 10 years, others for 15 and others for 20 or 25 years. Even after 25 years, key transparency measures, such as the legal obligations Iran will assume under the Additional Protocol, remain in place indefinitely as part of its adherence to the Nuclear Nonproliferation Treaty regime.

In closing, I want to acknowledge the tireless work of the negotiating team, led by Secretary Kerry. The U.S. multi-agency delegation worked together collegially and seamlessly, and the E3/EU+3 displayed remarkable cooperation and cohesion throughout this complex endeavor. The continued cooperation among leading nations, in particular the permanent members of the U.N. Security Council and the EU, is crucial to ensuring that Iran complies with the JCPOA so as to avoid the re-imposition of a major international sanctions regime.

This deal is based on science and analysis. Because of its deep grounding in exhaustive technical analysis, carried out largely by highly capable DOE scientists and engineers, I am confident that this is a good deal for America, for our allies, and for our global security.

Thank you for the opportunity to be here. I look forward to answering your questions.