



## Heavy Water Reactor Restrictions in the JCPOA

Institute for Science and International Security

July 27, 2015

In our original [publication](#) on restrictions to the plutonium pathway in the Joint Comprehensive Plan of Action (JCPOA), we stated that Iran was allowed to build new reactors, as long as they relied on light water. Based on feedback, we have revisited our original interpretation of this issue. Based on the interpretation of three separate paragraphs addressing the issue of future reactors, we find that there is a firm commitment to not build heavy water reactors for 15 years, but what happens after remains unclear and reliant only on Iranian plans.

The JCPOA states: “There will be no additional heavy water reactors or accumulation of heavy water in Iran for 15 years. All excess heavy water will be made available for export to the international market.” For the first fifteen years, heavy water reactors are clearly banned. However, after 15 years, the situation is less clear since interpretations can vary.

There are two relevant provisions in the JCPOA covering the period after year 15:

- The main body of JCPOA states: *“Iran plans to keep pace with the trend of international technological advancement in relying on light water for its future power and research reactors with enhanced international cooperation, including assurance of supply of necessary fuel.”*
- Par. 16, Annex 1 states: *“Consistent with its plan, Iran will keep pace with the trend of international technological advancement in relying only on light water for its future nuclear power and research reactors with enhanced international cooperation including assurances of supply of necessary fuel.”*

Both statements appear provisional and rely on Iranian plans rather than on firm commitments about restraint from building a heavy water reactor after year 15. Moreover, we could not find a provision in the JCPOA requiring Iran to adhere to its plans after year 15. After all, plans can easily change. For example, both statements contain the clause on Iran receiving “assurance of supply of necessary fuel.” Iran could interpret this statement relatively freely as it sees fit at a future time.

As a result, we have revised our report to state that Iran has committed not to use heavy water reactors for 15 years. The agreement does not ban the construction of heavy water reactors after year 15. The JCPOA appears to suggest that Iran does not plan to build such reactors after year fifteen but it needs to be recognized that plans can easily change. It should also be noted that a few years ago Iran’s original public position on reprocessing was that it had no plans to reprocess, and thus it did not want to agree to ban reprocessing. This position was entirely unacceptable in the negotiations of the JCPOA and was replaced by a fifteen year ban.

The problem with the reactor issue appears to be that the negotiators could not agree to continue the ban on heavy water reactors for more than 15 years, like as in the case of a reprocessing ban. In the case of the reactors, the E3+3 negotiators appear to have sought to restrain Iran from building heavy water reactors after year 15 with language discussing Iranian plans. However, this restraint relies on an Iranian plan that could change at any time and is not binding after year fifteen.