



## Technical Note: Making Sense out of Iran's Offers to Cut its SWUs

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During the Iran nuclear negotiations which took place in Vienna in July and more recently during side meetings in New York, Iranian officials have proposed cutting the SWUs, or separative work units, of the roughly 18,000 IR-1 centrifuges installed at the Natanz and Fordow enrichment plants without removing or shutting down any centrifuges. Iran's SWU-cutting proposal was rightly rejected by P5+1 negotiators during the July talks. (This Iranian offer is unrelated to a reported U.S. offer to discuss disabling excess centrifuges via disconnecting centrifuge piping and/or removing key equipment as part of a plan to reduce the total number of operational centrifuges while not destroying excess centrifuges or associated equipment).<sup>1</sup>

Normally in the context of centrifuges, SWU is discussed as a rate, such as separative work units per year. Adding to the confusion, Iran also uses a non-standard measurement of SWU per year without stating it is doing so. In any case, we will use an annual rate of enrichment output.

During the July 2014 negotiations between Iran and the P5+1, Iranian negotiators discussed lowering the total annual SWU while keeping the number of installed centrifuges the same. Iranian officials suggested that such cuts could be accomplished by lowering the speed of the centrifuge or adjusting the rate of feeding the centrifuge cascades. It is true that either method would lower the enrichment output of a centrifuge, possibly significantly, because lowering the enrichment output depends sensitively on rotor speed. But these steps can be easily reversed—speed could be increased and feed rates adjusted back to the optimal rates within a day.

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<sup>1</sup> ISIS in general has questioned the value of disablement plans for excess installed centrifuges, recommending instead dismantling of the centrifuges. The reason is that disablement would allow Iran to reconstitute its pre-agreement centrifuge capability relatively rapidly, if it reneges on a long-term deal. The essential weakness of most disablement schemes, which leave the equipment intact and stored in-country, is that they can be reversed relatively quickly, and in some instances even more quickly than expected, as was learned in the North Korean case when the Six Party Agreement collapsed in the late 2000s.

Of course, almost all on the Western negotiating teams did not see this as an acceptable proposal. However, not all recognized the infeasibility of the proposal, reflecting perhaps the thinking of some who are desperate to reach a deal that satisfies stated Iranian red lines against any reduction in the number of installed centrifuges. But negotiators must remain clear on this point: an agreement that lowers total annual SWU without lowering the number of installed centrifuges is not acceptable. It is easily reversible. It does not extend breakout time or provide time for warning in the case that Iran reneges on a long term deal. Moreover, it would be extremely difficult to verify, tying up valuable international inspectors' resources in an unproductive manner.

This week in New York, Iranian officials may talk again about reducing the annual SWUs of the installed centrifuges. Any such Iranian offer that does not explicitly state that centrifuge numbers will be reduced should be treated with skepticism.