

## Iran's Uranium Enrichment Program: November 2021 Update

The information provided by the International Atomic Energy Agency's November 2021 update demonstrates that Iran is continuing to make significant advances toward producing the 90% enriched uranium needed for nuclear weapons.<sup>2</sup> As I wrote last year, Iran, using just its stockpile of 3.5-5% enriched uranium and its centrifuge enrichment facilities, could, in a matter of a few months, produce 20 kilograms of 90% enriched uranium which is a sufficient amount to produce a nuclear weapon.<sup>3</sup> However, in 2021 this time has contracted substantially, as Iran has expanded its centrifuge facilities and also began producing 20% and 60% enriched uranium.

Iran's stockpiles of 20% and 60% enriched uranium have grown so large that using just this higher enriched material alone, Iran can now produce 20 kilograms of 90% enriched uranium in one week. Using its remaining 20% enriched uranium plus some of its 3.5-5% enriched uranium stockpile, it would take Iran an additional month to produce a second weapon's worth of 90% enriched uranium. Five weeks after that Iran, using part of its remaining 3.5% to 5% enriched uranium stockpile, could produce a third weapon's worth of 90% enriched uranium. At this point, Iran's remaining stockpile of 3.5-5% enriched uranium would be too small to produce a fourth weapon. Iran would need to pause to produce some additional 3.5-5% enriched uranium before producing sufficient 90% enriched uranium for a fourth weapon. This process would take an additional four months.

Since April 2021, Iran has abandoned any pretense that its enrichment activities are intended to produce the 3.5-5% enriched uranium that would be used to fuel a nuclear power reactor, as it is no longer expanding its stockpile of this material. Rather Iran's production of 3.5-5% enriched uranium is being counterbalanced by its consumption of that material to produce 20% and 60% enriched uranium.

As I have written previously, there appears to be no satisfactory way to prevent Iran from acquiring the 90% enriched uranium required to produce nuclear weapons.<sup>4</sup> In 2021 Iran has been moving slowly but steadily towards this goal. Iran appears determined to join the ranks of the nuclear weapon states.

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<sup>1</sup> This paper is the product of the author's personal research and the analysis and views contained in it are solely his responsibility. Though the author is also a part-time adjunct staff member at the RAND Corporation, this paper is not related to any RAND project and therefore RAND should not be mentioned in relation to this paper. I can be reached at [GregJones@proliferationmatters.com](mailto:GregJones@proliferationmatters.com)

<sup>2</sup> Verification and monitoring in the Islamic Republic of Iran in light of United Nations Security Council resolution 2231 (2015)," GOV/2021/51, International Atomic Energy Agency, November 17, 2021.  
<https://www.iaea.org/sites/default/files/21/11/gov2021-51.pdf>

<sup>3</sup> Gregory S. Jones, "Iran's Uranium Enrichment Program: November 2020 Update," December 7, 2020.  
<https://nebula.wsimg.com/58abfdb174612aafa1d84d8b208e4233?AccessKeyId=40C80D0B51471CD86975&disposition=0&alloworigin=1>

<sup>4</sup> Gregory S. Jones, "Iran's Uranium Enrichment Program: June 2021 Update," July 8, 2021.  
<https://nebula.wsimg.com/a4d47d173c6d3280f919d00997eaccb4?AccessKeyId=40C80D0B51471CD86975&disposition=0&alloworigin=1>