

September 17, 2016

Office of Nuclear Energy  
US Department of Energy

**Re: RFI on Uranium Transfers – Downgrade to HEU20**

You requested information on the market impact of selling surplus weapons-grade uranium (HEU), downgraded to ~4% U-235 content (LEU4), to be sold as fuel for solid fuel light water nuclear power plants.

Instead, I recommend a better use, downgrading the uranium to 19.75% U-235 (LEU20) and storing it for sale to companies developing advanced nuclear reactors that require this level of enriched uranium.

Such LEU20 is not weapons usable, so this downgrading would satisfy the goal of removing the risk of loss of HEU to weapons-intent terrorists or hostile nations.

LEU20 is important for make-up fuel in molten salt reactors; using LEU4 dilutes the fuel salt too much, leading to short fuel cycles.

LEU20 is also important for research reactors and medical isotope production reactors. Making a supply of HEU20 available will encourage institutions like MIT to convert HEU-fueled reactors to ones without weapons-usable uranium.

LEU20 is not available in quantity in the US today. US companies that might purchase LEU20 from the government include Martingale (Florida), Elysium (Massachusetts), Transatomic Power (Massachusetts), and Terrestrial Energy (New York and Canada).

Nations such as Indonesia, which is considering installing molten salt reactors, could purchase LEU20 from the US rather than from Russia.

Should customers not buy stored LEU20 after 10 years, the proposed plan to downgrade to LEU4 could still be carried out.

In summary, I recommend DOE downgrade surplus HEU to LEU20, store it, and sell it to organizations developing advanced nuclear power reactors.

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