

Title: The long History of Promises by Accelerator-driven Systems

Author(s): Friederike Frieß et al.

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General comments:

I appreciate this manuscript as an excellent and comprehensive contribution to the current discussion on alternative (to direct deep geological disposal) HAW treatment strategies. Although the authors definitely distrust promises of startup companies recently vehemently advertising the benefits – and even additional revenues – of ADS facilities, the manuscript stays rather impartial – also pointing out the slow progress of conventional HAW treatment and disposal efforts. Although the concept being not new at all, ADS might be an option, especially for countries with large stocks of weapon grade plutonium.

Specific comments:

The most important statement – although not new either – is on the necessity for final disposal capacities even when treating the majority of HAW in ADS machines. Those capacities might change with waste constituent separation (partitioning) and burning (transmutation) efficiencies. In this context, one aspect seems to be somewhat neglected. What about the energy costs for operating industrial scale reprocessing and transmutation target fabrication plants required to provide the fuel for the ADS fleet over many decades? What about volumes and radiotoxicity levels of all the generated secondary waste streams concentrating fission products, and process technology equipment highly activated during necessary reprocessing cycles?

Technical corrections:

I did not discover any technical errors or flaws.