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Scale Economies in Extended SNF Storage

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Fuel is periodically replaced in nuclear power plants (NPPs). Irradiated or Spent Nuclear Fuel (SNF, where SNF could be used nuclear fuel if reprocessing facilities are available) cools in suitable facilities, where the type and the length of time depend on plans for the ultimate disposition of the SNF, for example, reprocessing or permanent long-term storage ("extended" implies storage longer than 50 years). The paper attempts to calculate the relationships between the costs and the sizes of on-site wet and on-site/off-site dry storage facilities. This is done by estimating reduced-form equations based on publicly available data, which can be modified with more recent, detailed, or proprietary data to update or extend the analysis: the values reported here should not be considered as the only possible outcomes; they are used here to understand relative NPP SNF owner economic incentives. The paper finds that once the NPP has been decommissioned, and only the on-site dry storage remains, there might not be a cost reason (from the point of view of the NPP owner/operator) to move the SNF to consolidated facilities. However, there is a consensus that consolidated facilities (a) would be more safe and secure than dispersed on-site storage locations, (b) would facilitate final disposal, and (c) can reduce the risks perceived by local communities near SNF storage facilities.

Do you wish to enter the YGE SFM19 Challenge?

Yes

Country or International Organization

United States of America

Primary author: ROTHWELL, Geoffrey (Nuclear Energy Agency)

Presenters: ROTHWELL, Geoffrey (Nuclear Energy Agency); MCMANNIMAN, Laura (IAEA)

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